

**TESTED** PIXEL / PEBBLE  
COMPACT CAMS / COCKTAILS

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# S4 VERSUS ONE

- HANDBS-OFF WITH THE EYE PHONE
- HTC'S AWESOME ANDROID TESTED



## INCOMING!

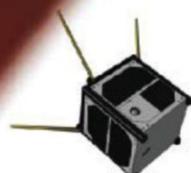
# 2013's TECH REVOLUTIONARIES **iWATCH**

It's a digi-wallet. Doctor. Security guard. Personal oracle. Oh, and a clock

## PLUS!

# GLASS

Line-of-sight sat-nav & POV pics: yes, we would wear Google's smart-goggles



## KICKSTARTER VS NASA

One small step for venture capitalism



www\_stuff\_tv May 2013 £4.50

# SONY

make.believe

# “Sony reinvents the phone”

-Tom Bailey, Tech Editor, ShortList



“Xperia™ Z exudes class”

-Engadget, Jan 7th 2013

“...this is our new favourite smartphone”

-Stuff magazine, March 2013



The new **Xperia™ Z** smartphone from Sony

[sonymobile.com](http://sonymobile.com)

# SONY

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# experience the best of Sony in a smartphone



The new Xperia™ Z



Discover more



# SONY

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Discover more

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[sonymobile.com](http://sonymobile.com)

In compliance with IP55 and IP57, Xperia Z is protected against the ingress of dust and is water resistant. Provided that all ports and covers are firmly closed, the phone is (i) protected against low pressure jets of water from all practicable directions in compliance with IP55; and/or (ii) can be kept under 1 metre of freshwater for up to 30 minutes in compliance with IP57. Icons are for illustrative purposes only. Sony and "make.believe" are trademarks or registered trademarks of Sony Corporation. Google Chrome and Google Play are trademarks of Google Inc. All other trademarks are property of their respective owners. © 2013 Sony Mobile Communications AB. \*Verified by Strategy Analytics as of 4th of February 2013, for more information on Strategy Analytics results go to: [www.sonymobile.com/testresults](http://www.sonymobile.com/testresults). \*\*As of 4th of February 2013, outside of Japan there are no smartphones with a waterproof rating higher than the Sony Xperia Z.

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Model shown is a Porsche Cayman S at £51,724 including 20-inch SportTechno wheels, Bi-Xenon lighting system with Dynamic Light System (PDLS), 12 months road fund licence and first registration fee.

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PORSCHE

Official fuel economy figures for the Porsche Cayman Range in mpg (l/100km): Urban 23.2-24.8 (12.2-11.4), 40.9-44.8 (6.9-6.3), Combined 32.1-34.4 (8.8-8.2), CO<sub>2</sub> emissions: 206-192g/km.

# Stuff

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**Editorial** ...and their ideal iWatch app (p56)  
editor Will Findlater ...'sleep' button for my son  
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production editor Marc McLaren ...*Rogue Astronaut*  
features editor Mark Wilson ...*Pie Locator*  
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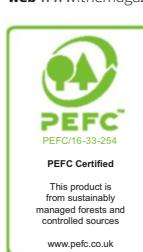
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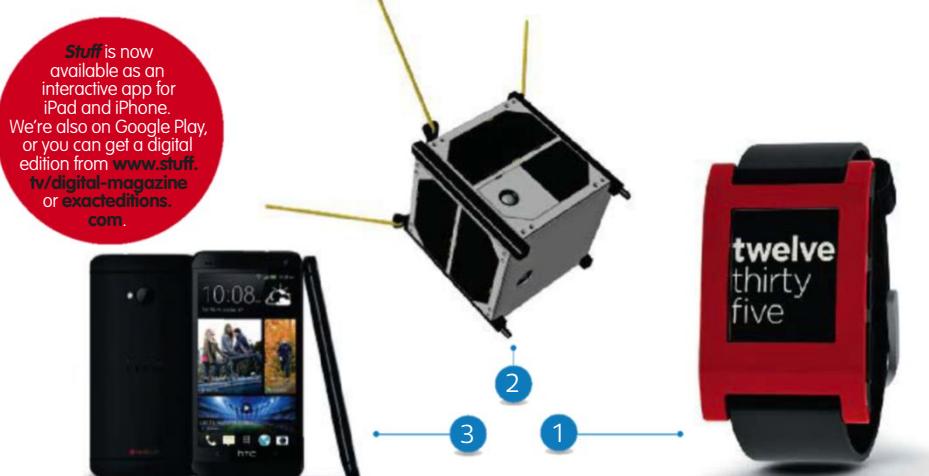
# BOOKMARKS

will@stuff.tv | @willfindlater



**This month, our geekiest dreams became reality.** The ability to transform ourselves into cyborgs complete with head-up display is a nailed-on certainty now that Google has beta-released Glass into the wild. Meanwhile, *Dick Tracy* tech received a major boost as rumours emerged from *The New York Times* of Apple's iWatch. The signs are clear: pockets will soon become obsolete as part of the wearable gadget revolution, whether it demands a shot of sartorial bravery or just requires you to strap something shiny to your wrist. Prepare yourself for either eventuality by popping to **p56 to find out how we'd build the iWatch** using today's best smartwatch tech, and then why Google Glass is such a world-shaking prospect.

But it's not just Apple and Google who are out to change the world. The Little Guy is showing The Man a thing or two when it comes to innovation, turning quixotic ideas into reality thanks to the power of crowdfunding. A year on from the mega-riches raised by the **Pebble smartwatch (1, p85)**, we've rounded up **Kickstarter's greatest hits, including, yes, spaceships (2, p91)**. Innovation isn't the only thing that impresses us, mind you. Just check out our review of the mostly normal but spectacularly realised **HTC One (3, p44)**. So good job, The Man, and keep it up, Little Guy.



## A WORD ABOUT PRICES...

Unless stated otherwise, we show the manufacturer's recommended price on every gadget. Two exceptions:

- Mobile phones get a SIM-free price unless they're locked to a network and so only available with a contract.
- All prices in the Top 10s (p131) are the best we could find at the time of printing.

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[twitter.com/stufftv](http://twitter.com/stufftv)

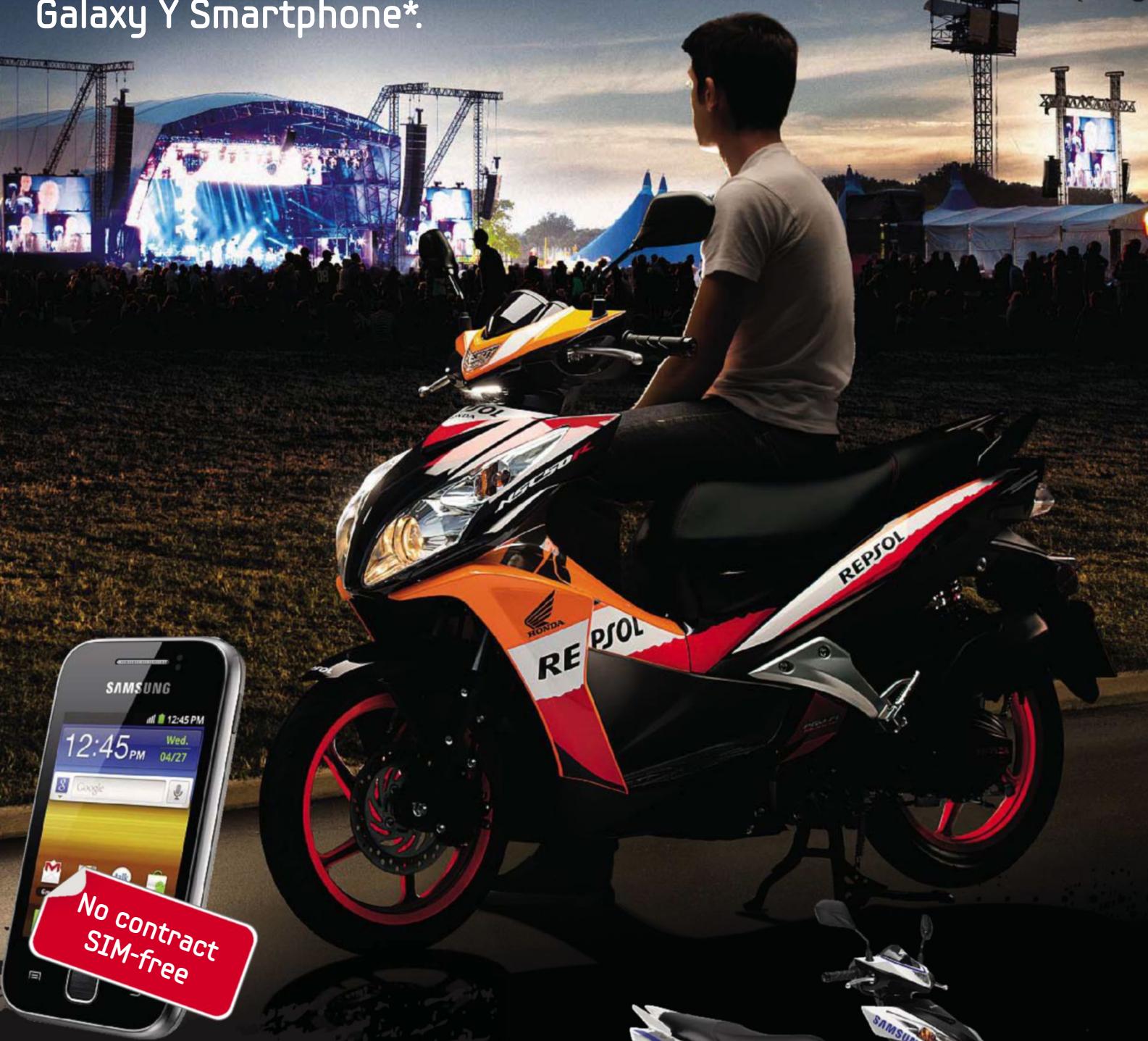
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[www.honda.co.uk](http://www.honda.co.uk)



// iWatch theories are based around one certainty: it's not about telling time" **p56**



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# A cut above.





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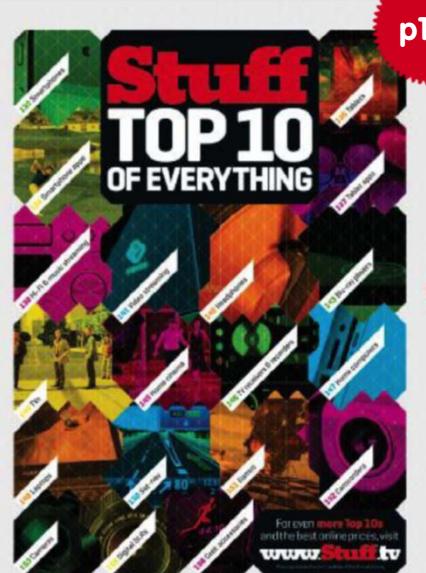
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## THE ULTIMATE BUYING GUIDE



# HOT STUFF

05/13

23 PAGES OF THE  
BEST NEW GEAR  
MONEY CAN BUY



## Samsung Galaxy S4

DOCTOR OCTOPHONE

£799 (due 26 April) | [samsung.com](http://samsung.com)

If it ain't broke, don't fix it; a piece of conventional wisdom that applies to everything but technology. Anything within the gadgetsphere must be constantly changed, tinkered with and improved upon. You can't just make a smartphone as excellent as the Samsung Galaxy S III and then continue to sell it for five years. You need to update it with 4G, a 1080p screen, an eight-core CPU, touch-free control (see panel right) and add in the ability to tell you when you're coming down with the flu. But you've got to make sure it still feels like the hugely successful S III, only newer, better. So, perhaps a more apt piece of wisdom would be 'if it ain't broke, keep it aesthetically the same but significantly upgrade its hardware and functionality'. Just rolls off the tongue, doesn't it?

A shot as... a piri piri tritium milkshake

### EIGHT CORES? REALLY?

Yes and no. While the S4's Exynos 5 Octa processor does have eight cores, they don't all fire at once. It's more like having two quad-core chips: one uses lower-power A7 cores to accomplish basic tasks, while the other, composed of four 1.6GHz A15 cores, rumbles into life when you want to play a demanding game or render an effect on to some video. The idea isn't to provide more power than you could possibly use, it's to save battery.



### RATE & REVIEW

### DESCRIPTION

Stuff inspires and nurtures a passion for gadgets. We make them look amazing and explain in a fast, confident and unfalteringly entertaining way how they will enhance our readers' lives. Stuff is a celebration





WTF?

Whenever you see one of these QR codes, use a smartphone app (such as QR Reader for iOS or Google Goggles for Android) to scan it. You'll be whisked to a website without a moment's fiddly URL-typing.

## YOU CAN NOT TOUCH THIS

The S4 is a touch phone you don't need to touch. It works like this...

### AIR GESTURE

If you're a butcher, you'll know the frustration of missing an important call because you can't touch your phone with meat-covered hands. No more! Thanks to the S4's ingenious finger-tracking, you can answer calls by wafting your bloodstained paw above the screen, change music tracks with a sideways flourish or scroll websites with a downward wave. Hygienic.

### SMART SCROLL & SMART PAUSE

The S4 doesn't just track your fingers. Like its predecessor, it can also track your eyes, but in a more sophisticated fashion: it will now scroll through webpages automatically by looking at which bit of the screen you're reading. And when you're watching a video, the footage will pause if you look away. Sounds great, but what if you're looking away to avoid seeing a football score, film spoiler or an advert for Pledge Lemon with zesty nanoparticles?

## S-PECIAL SKILLS

### ■ S TRANSLATE

The S4's extra goodies include a compelling translator app that does text-to-speech (type your phrase in English, it'll say it in Korean) and speech-to-text (a Frenchman speaks to your phone, it shows you the translation). You can also use image recognition to translate printed words such as menus or syndicated editions of *Stuff*. Worried about roaming charges? The translator has thousands of phrases stored in 10 languages, so you won't even need an active data connection.

### ■ S HEALTH

From the distance you've walked or run, to how well you slept, to more sophisticated data about you and your surroundings, the S4 is able to constantly collect information about your exercise, diet and general health... and secretly provide that data to the giant pharmaceutical companies that secretly rule our world. Only kidding. Its life-tracking skills can help you lose weight, sleep better or train for a marathon.



### ■ CAMERA SMARTS

**ERASER** Like a personal Stalinist airbrusher, it rids backgrounds of those pesky photobombers.

**DUAL CAMERA** Puts the picture-taker in the picture using the 2MP front camera (stills or video).

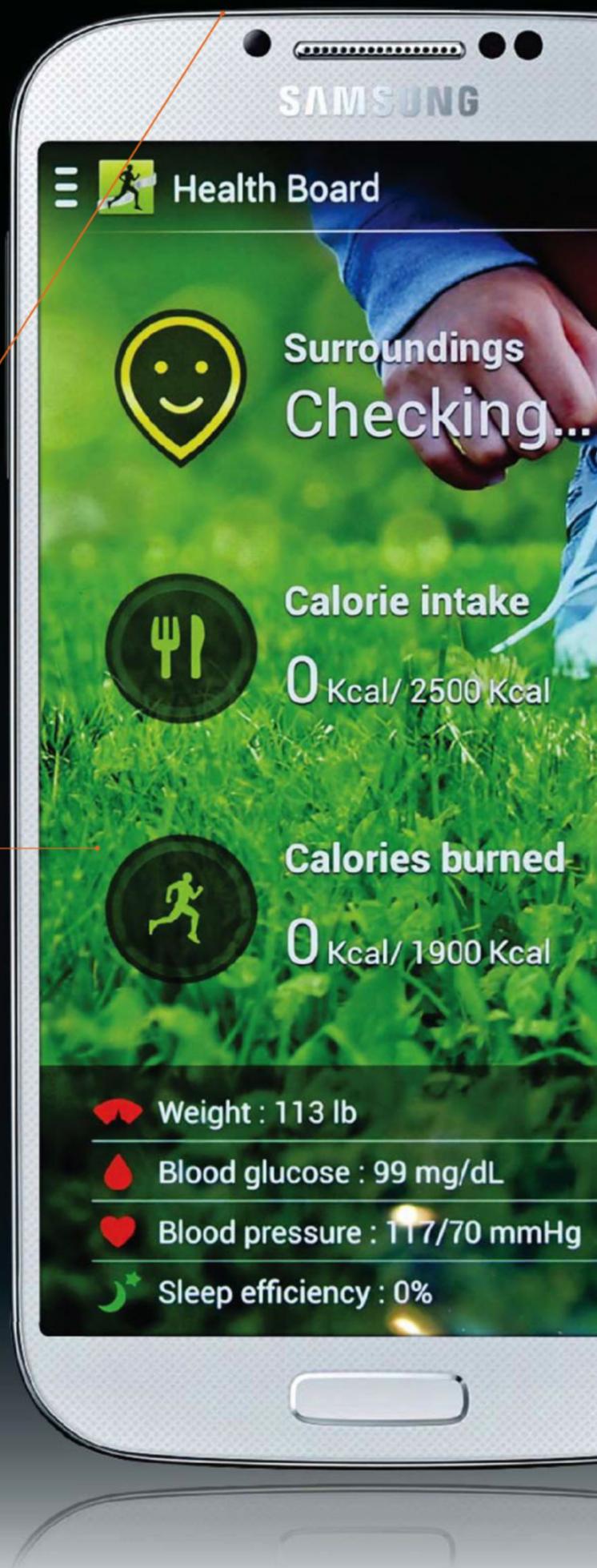
**DRAMA SHOT** Combines multiple shots taken in burst mode into one action-packed image.

### IR IMPRESSED

This season's must-have accessory is something a little bit retro: an infra-red 'blaster' that allows you to use your smartphone as a universal remote. The Samsung WatchON app provides you with an EPG for full control of your telly, but you can also use it to control your hi-fi, set-top box, Blu-ray player and even some air-conditioning units.

### WEIGHTY 1080

There was no way Samsung was going to stick anything other than a 1080p display in its flagship phone, and the S4's Super AMOLED pentile display takes a seat at the big boys' table with a pixel density of 440ppi. It's also coated in Gorilla Glass 3, which manufacturer Corning claims is tougher than aluminium of the same thickness.



**ASTUTE SHOOTER**

We haven't had a chance to crack the S4 open and rummage around its steely intestines, but we'd put money on that being the same 13-megapixel Sony camera module you'll find in most of this year's flagship phones. However, software features such as Drama Shot and Eraser (see panel, left) should help it stand out from the camera crowd.

**A FAMILIAR FACE**

At 7.9mm, it's almost a millimetre thinner than the S III, but otherwise pretty much exactly the same size and weight. With a bit of judicious bezel-shaving, though, Samsung has managed to shoehorn a full 5in screen into the S4 (compared with its predecessor's 4.8in display). Which is great, because who likes a big bezel?

**OPEN GALAXY**

There are two big reasons to prefer Samsung offerings over rival Android phones: they have removable batteries and microSD slots. These might seem trivial, but anyone with an 8GB Nexus 4 will weep at the thought of being able to add an extra 64GB for £30. And while you shouldn't really need a spare 2600mAh battery, it's nice to have the option.

## SAMSUNG GALAXY S4 vs HTC ONE

BY MARK WILSON, FEATURES EDITOR

**■ Design and build**

In a class-off between metal and plastic, metal is always going to win. The S4 is thinner and lighter than the S III, but only slightly less plasticky; in terms of look and feel, the One is plainly the more desirable object. However, the S4's curves are very hand-friendly, ameliorating the hugeness of its 5in screen. Speaking of which, Samsung deserves a big hand for keeping the replaceable battery and microSD expansion slot.

**■ Screen**

Pixel density used to be a big deal before 1080p smartphones, but now that they're all over 400ppi, a slightly higher number won't make much difference unless you have the colossal eyes of a deep-sea squid. Colours on the S4's Super AMOLED are brighter, punchier and more saturated, while the One's SLCD looks more natural. In real-world use, though, the S4's smart display-adapting technology may make a more noticeable difference.

**■ User interface**

HTC Sense 5.0 looks more sophisticated than the latest TouchWiz, which is still slightly gaudy and cartoon-like for me. However, gesture tracking sets the S4 apart from other Android phones: Air Gesture and Air Touch push the boundaries of phone interaction. They're certainly not essential, but they're fun new toys and may genuinely come in handy later.

**■ Power**

Both phones are amply equipped to deal with juggling demanding applications without the slightest lag. It's more a case of the apps catching up with the hardware where these phones are concerned. It'll take a full test to see the benefit of the S4's 1.6GHz Octo-core, but combined with its larger battery it may offer the S4 a sizeable advantage.

**■ CONCLUSION**

My inner design critic says HTC One – it looks nicer, its UI is classy and unobtrusive, and its display is more realistic. But my inner specs geek says the Samsung Galaxy S4 brings more new stuff to get excited about, especially the touchless tracking. Many of its innovations will probably go unused, but it's good to see Samsung trying out new things. We'll pit the pair against each other in a full test soon.

**Read our HTC One test on p44**



HOT FIVE #2

## Bowers & Wilkins Z2 ANY PORT IN A (LIGHTNING) STORM

£tba | [bowers-wilkins.co.uk](http://bowers-wilkins.co.uk)

For all the brilliance of the iPhone 5, that Lightning connector certainly raised a few hackles, especially on those who already had a whole houseful of docks to go with their old Apple products.

As a result, companies have been tentative about releasing Lightning-equipped gear, but it's starting to happen: B&W, dockmakers to the discerning and deep of pocket, has created a new dock for your iPhone 5, which you can clunk your new blower on to just like you did with your old one. Prefer the Hindenburg-shaped Zeppelin? Well, there's a Lightning-equipped version of that now, too, and they both stream losslessly via AirPlay. So you're all set – until Apple announces its new Fog connector this summer, that is... Just kidding. Or are we?

**A shot as... riding the lightning without a saddle**



HOT FIVE #3

## Dell XPS 18 DON'T CALL ME SLATEY from £850 | [dell.com](http://dell.com)

Let's get this straight: the XPS 18 is not a tablet. That would put it into the same crazy bracket as Sony's Vaio Tap 20 giganto-tab, a design we foresee having all the longevity of a 90-year-old haemophiliac knife juggler. The XPS 18 is a nice desktop computer that comes with a nice desktop stand, keyboard and mouse. And it's a bedroom TV, because you can pull the 1080p screen off the stand, flip out the little standlets on the back and watch movies elsewhere. It could even be a tabletop PC if you laid it flat on its back and had the whole family crowd round to use its touchscreen. Oh, and at 2.3kg it's not too heavy to be used, around the house, as a flat Windows 8 Pro computer. But it's not a tablet. Got it?

**A shot as... watching London's Burning repeats in the sauna**



## Ferrari LaFerrari DOUBLE-DIP REV SESSION

£1million | [ferrari.com](http://ferrari.com)

Hybrid cars are all about compromise. About accepting reduced power in return for the warm green glow of environmental do-goodingness. About specs being downgraded as fuel economy levels are raised. Well somebody forgot to tell Ferrari – because its brilliantly named LaFerrari supercar is about as much of a compromise as a date with the world's second most beautiful woman. Its 6.3l V12 engine spews out 800hp – until you fire up the electric motor, at which point you'll be sitting on 963hp of pure Italian vroom. It also gets KERS tech from Ferrari's F1 cars, a sub-3 second 0-60 time and a top speed of 217mph. Shame only 499 are being made.

So there is a compromise after all.

**As hot as... being burned and electrocuted simultaneously**





## PG BlackBraid

DARK AND LIGHT

€15,000 | [pg-bikes.com](http://pg-bikes.com)

The bike (or rather, bikes) that Bradley Wiggins won the 2012 Tour de France on were a little bit special. They cost over ten grand apiece and came bedecked with stiff, feather-light components made from futuristic materials. And yet, by the standards of the BlackBraid, even a Tour-winning road-whippet looks a little weighty. You see, while Bradley's bike weighs in at a shade over 7kg, the BlackBraid wafts on to the scales at just under 5kg. Woven from braided carbon fiber and using a frame design with just one seatstay and one chainstay, it's far too light to be used as a track bike in the Olympics, where the minimum weight allowed is 6.8kg. And while its single-speed carbon belt drive might cost you a few mountain stages, it'll drift through traffic like a wisp of smoke.

**A shot as... riding gravity-free through space into the heart of the sun**





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SAMSUNG



## IN DETAIL | THE SMALLEST, LIGHTEST SUPERCOMPACT

# Nikon Coolpix A

£1000 | [nikon.com](http://nikon.com)

Being greedy gadgeteers, we all want pro-looking pictures without lugging around a DSLR – hence the sudden boom in compacts with big sensors. After the Fuji X10S and the Sony RX100 (tested p113), here's the Coolpix A: the first Nikon compact with a DX sensor.

With the same 16.2MP DX sensor as that in the excellent D7000

DSLR, the Coolpix A should be an excellent low-light performer. Backing it up is an Expeed 2 image processor that can shoot four full-res images in a second, and also produce pro-friendly RAW files.



While the Coolpix A does not, at first glance, look like a grand's worth of camera, it does have a considerably higher build quality than its more affordable forebears.

A magnesium alloy body and metal dials should make it hardware and tactile, while a leatherette grip provides stability.

This is a snapper aimed at DSLR users, so it has a focus ring around the lens to override the autofocus and allow you to get creative. The Mode wheel will feel reassuringly familiar to DSLR shooters, too, with aperture and shutter priority modes as well as full manual. The menus don't skimp on settings, either.



Adding to the low-light abilities bestowed by that large sensor is an impressive ISO range. It goes up to ISO 6400 as standard, and can be extended to a whopping ISO 25,600. Your image is likely to be noisier than a duck in a wind turbine at that level, though.

To reaffirm that the A is pointed at serious photographers, it doesn't have a zoom. Instead, it has an f2.8 prime lens with a 35mm-equivalent focal length of 28mm, which is wide, but versatile – great for getting spur-of-the-moment snaps and people shots without the need to back away to fit it all in.

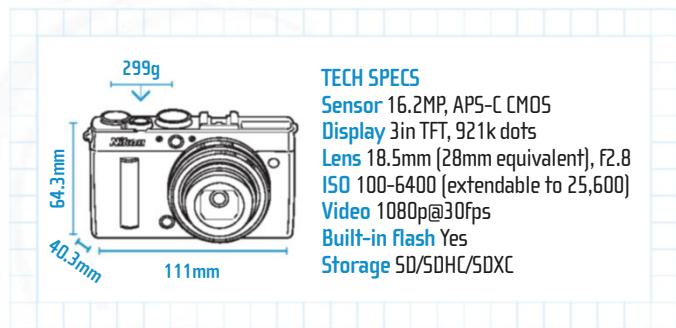
### Stuff says

Small size and unassuming looks belie the abilities of this miniature powerhouse

### Alternatively...

**Sigma DP1 Merrill**  
£800 | [sigma.com](http://sigma.com)

Sigma's updated supercompact also has a 28mm-equivalent lens and a focus ring, but boasts a Foveon X3 sensor. It too is a staunch enthusiast camera, but that's what makes it good.



**Vroom for improvement  
Huawei Ascend P2****£400 | huawei.com**

Isn't it funny – and by funny we mean annoying – how broadband is always about half as fast as the 'up to' speed it's advertised as? If you bought a car that could do 'up to' 120mph, you could at least expect to do that speed every once in a while, albeit on a race track. The P2 is in many respects a fairly standard Android, but it's the first smartphone we've seen to feature a LTE Category 4 modem, which can support connections of up to 150Mbps. So if your network manages to provide it with half of that, you'll be laughing.

**It's more of a RAIDonette  
Buffalo Ministation Slim****£60 | buffalo-technology.com**

Buying storage space is a lot like buying a house. The tech megacorporations are in the city centre, where tiny flats cost a fortune: Apple asks £80 to add 16GB of memory to an iPad, while Google puts a paltry, non-expandable 8GB or 16GB in its Nexus 4. Buffalo, on the other hand, is a more suburban option – not as highly sought after, but you get more for your money. In this case you get the world's smallest external HDD, offering a roomy 500GB in a smartphone-sized frame. And with USB3.0 giving it data transfers of 5Gbps, it's got excellent transport links too.

**Proper tidy speakers  
Ruark Audio MR1****£300 | ruarkaudio.com**

You can lose an entire day tidying your home office, but it's so satisfying when your desk is empty but for a monitor, keyboard and mouse. Oh, and those beige PC speakers that came with your dad's 800MHz Gateway machine in 2002. Damn, those things are nasty. Especially compared with these walnut-coated hunks of hi-fi, which look absolutely spanking either side of a screen, and make wireless music sound better than it has any right to. You can even stream to them from your phone over aptX Bluetooth. Might as well get rid of the PC while you're at it, then.

**NEWS FEED****GAMES*****Age of Empires II remastered***

Tell friends you'll see them in 2014, when you've finally tired of the HD edition of the greatest RTS game ever. With multiplayer, multi-monitor support and new textures, it'll keep you history nerds pasty through summer. Available on Steam from April 9.

**APPS****Hate everything**

Sick of the happy, brand-bumping, thumbs-up advertising structure of Facebook, Foursquare, Instagram et al? Hater is a sharing service that lets you say how much you hate things. But it's only available on iOS, which is something many hate already.

**TV****A show of Defiance**

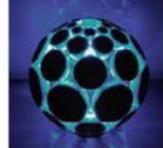
This month sees the release of SyFy's bold new project *Defiance*, which is both an open-world FPS and a new TV show. The idea being that the Xbox/PS3/PC game's huge online world is constantly affected by what happens in the show. And TV execs get to use the word 'transmedia'.

**TASTY MOTORS****Electric racer kits speed into view**

Birmingham City University and Westfield Sportscars have joined forces to develop the iRacer, an electric car designed to race in the mooted electroracer tournament the EVCup. Kits will sell at £14,000, but batteries are, sadly, not included. And this thing will cost you a lot in batteries.

**GOOGLE****Adblock fuss**

Google has removed all ad-blocking apps from its Play store, including the hugely popular Adblock Plus. "Google is stepping all over the checks and balances that make the internet democratic," said ABP co-founder Till Faida. But it's not the end of ad-free browsing on Android: you can still install ABP as an add-on in Firefox or Opera.



## Wacky grooves

Trade in your ukulele for something a little weird  
[bit.ly/wackygrooves](http://bit.ly/wackygrooves)

### MP3 SPY

#### Tom Wiggins

Gunning a white van of vinyl all the way up the M4A

Once upon a time MP3s used to come on big, black discs called records. But unlike MP3s, you can't just download replacement vinyl if all existing copies get destroyed by a riot or a *Sim City*-style natural disaster, and re-pressing them is an expensive business. Which is where **Beat Delete** comes in. The brainchild of Ninja Tune (although other labels can join in), it's like a Kickstarter for out-of-print vinyl. Find something you'd like to own, place your order and if enough people follow suit it'll be re-pressed, boxed up and shipped out to you.



Have you ever wondered whether Radiohead fans are really all miserable? Or if Mumford & Sons fans are all honking toffs? Wonder no more: **Stereotype.fm** has taken data from music-based dating site Tastebuds.fm to reveal that Wavves fans are in fact the most miserable and Mumford & Sons don't even make the top 50 with privately educated fans. Meanwhile, fans of Nickelback are most likely to agree with the death penalty. Which, ironically, is what the punishment should be for liking Nickelback.

### The playlist

Songs for the iWatch (p56)

- 1** **MGMT**  
Time to Pretend
- 2** **Ghostface Killah**  
Whip You With a Strap
- 3** **Interpol**  
Slow Hands
- 4** **Anthrax**  
Strap It On
- 5** **Yeah Yeah Yeahs**  
Tick

### Cans of steal Jabra Revo Wireless

£200 | [jabra.com](http://jabra.com)

For ne'er-do-wells, headphones have long been an indicator of a person's mugging value. Once, white earbuds would mark you out as juicy, Apple-loving prey; now it's a pair of bright red Beats giving you that I'm-carrying-cash allure. These on-ears are altogether more subtle, allowing you to walk home at night without anyone knowing that you paired your phone with them via NFC, that you can take calls through the integrated mic, that you're enjoying some Dolby Digital Plus audio processing, or that you can control them using gestures on the side of one cup. Unless muggers read Stuff, that is...



### Firefirst ZTE Open

Etba (due 2014) | [zte.com](http://zte.com)

When your life partner tells you that they want an open relationship, it means they're planning to do a lot of 'socialising', and you're going to do a lot of crying. But when your phone OS tells you it's going to be open, that's a good sign. Mozilla's Firefox OS has a Marketplace, but unlike Google or Apple, it's not going to prevent you from getting your apps anywhere else. Anyone can make a Firefox OS app and distribute it however they damn well please, and they'll all run, thanks to HTML5, on semi-disposable, sub-£70 smartphones such as this ZTE Open, the world's first Firefox OS phone.

### Stream of contentedness Zotac StreamBox

Etba (due spring) | [zotac.com](http://zotac.com)

Woah there! Were you just about to feed your 55in TV into a giant woodchipper? Don't give us that look – you were! Why? Because you can't stream movies to it from your NAS? Then just attach this smartbox via HDMI and it'll serve up your network's goodies, plus you can push whatever's on your tablet/laptop/tablet straight to the big screen. If you're on Android (4.2 or later) you can even use its Miracast tech to mirror your phone/tablet's display. So come on, step away from that chipper.



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\* Equivalent monthly price of a 2-year account



## Ditch the mice

Five of the best gadgets to help you cut the cord  
[bit.ly/ditchmice](http://bit.ly/ditchmice)

### Key developments

#### Roli Seaboard Grand

£169 (due summer) | [weareroli.com](http://weareroli.com)

The last truly touch-sensitive keyboard instrument was the Pig Organ, invented in France in the reign of Louis XI by the Abbot of Baigne in response to the king's request for "a concert of swine's voices". The Abbot arranged a line of pigs by size inside a contraption that poked each pig with a sharp stick when its corresponding key was pressed, prompting a squeal of the desired note. It goes without saying that the king and his company were delighted by the Abbot's organ, but it's a difficult thing to recreate these days, so you'll have to make do with the equally responsive (but less cruel) Seaboard Grand. Its squishy keys can be stroked to bend pitch and wobbled to create vibrato, making it probably the greatest development in keyboard history since the 15th century.



**WTF?**

Surprisingly sensitive touch keyboard

## START MENU

The month's best concepts, start-ups, crowdfunded projects and just plain crazy ideas

### See you later, irrigator



#### Greenbox

from US\$100 | [22seeds.com](http://22seeds.com)

Let's face it, most of us don't have the time – or the energy; or the discipline – to tend to our gardens, so we just go out once a year with a strimmer and kill everything we don't like the look of. The Greenbox is your way to kill off any false desire to get 'hands on in the garden': install the valves in your plant beds, tell it how much watering each area needs, and it uses your phone to check weather reports and irrigate accordingly.

**Status** awaiting funding ([kickstarter.com](http://kickstarter.com))

### A Brit of a cheek



#### Shroud of the Avatar

from US\$25 | [shroudoftheavatar.com](http://shroudoftheavatar.com)

Richard 'Lord British' Garriott is not the sort of fella who should be using Kickstarter. Sure, he's the creator of the Ultima series and his new fantasy RPG does look pretty sweet, but Kickstarter is for people who can't get a bank loan to make the game they want. Garriott has made hundreds of millions of dollars from games. He spent US\$30 million on being a space tourist. If he can't pony up a million to make his game, why should we? **Status** awaiting funding ([kickstarter.com](http://kickstarter.com))

### So hot right now



#### Mu Optics Thermal Imager

from US\$150 | [muoptics.com](http://muoptics.com)

Until now, infrared cameras have been very expensive, specialist devices that you'll only have seen used when Brian Cox wants to demonstrate how magically yet scientifically alive each and every one of us truly is. But this crafty little unit turns your smartphone, tablet or laptop into a proper thermographic camera, allowing you to see through walls and, even more exciting, find out if your loft insulation is working properly. **Status** awaiting funding ([indiegogo.com](http://indiegogo.com))

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### DIY keyboard

Oh 3D printers, is there anything you can't do?

[bit.ly/printedkeyboard](http://bit.ly/printedkeyboard)



## ICON

# Josiah speaker

£320 | [kwamecorp.com/josiah](http://kwamecorp.com/josiah)

**Hey, your plant pot's got a hole in it.** Yeah, that's there for drainage. It's important to have holes in them otherwise a plant's roots can go mouldy. Oh, you meant the other one, didn't you? That's no hole, it's a speaker driver. It is a ceramic pot, though, made by a proper potter in Stoke-on-Trent. And it's been furnished with Bluetooth speaker tech in Soho.

#### **Stoke-on-Trent? Pottery? These are not words of the future!**

Well actually, ceramics are some of the most futuristic materials out there, and they're increasingly used in everything from knives to the bearings found in F1 car wheels. The Josiah uses its heavy clay body to dampen any vibrations, which lets the speaker sing without the body rattling along with the music. And

Stoke-on-Trent is the home of the British ceramics industry, which was created there by one Josiah Wedgwood. Hence the name. And if you like it, there's also a DAB radio version, available for £340.

#### **Well, it does look pretty...**

And to be honest, that's pretty much the point. You could probably buy another speaker that would

outperform Josiah in a po-faced audio test – it's a 15W, mono effort, after all – but this is supposed to be more than that: a nice, durable object with an individual design, made by people in small, pleasant local workshops rather than giant factories on the other side of the world. Also, it has two divots in the top for keeping jelly beans, spare change or, yes, plants.

## Robo-rollersnake

Pipe-climbing critter, coming to rescue your cat soon  
[bit.ly/robotsnake](http://bit.ly/robotsnake)



HOT 05/13  
STUFF



No ball jokes

## 94Fifty Sensor Ball

US\$295 | [94fifty.com](http://94fifty.com)

Oh, you'd love for us to start talking about ball-handling and dribbling and how 94Fifty has used arrays of inertial motion detectors in order to make its balls incredibly sensitive, wouldn't you? Well, grow up right now. This basketball plays much like a normal ball but is indeed very sensitive to movement, which it reports to the companion app for detailed analysis of speed, spin and trajectory. The result is unparalleled analysis of players' skills, with the company planning to introduce a similarly smart socc... football, allowing you to improve your performance in every position. Oh, for crying out loud!

## SPOTLIGHT...

# Google Field Trip

£free | Android/iOS

### Thanks, but I already have my GCSE in ornithology.

No you don't, you big liar! No-one does. Anywhere. Regardless, this isn't the type of field trip on which you spend four hours trying to figure out how many different types of finch you've seen. It's more about finding a nice café, or a good library, or having a gander at an interesting bit of architecture. The app, made by Google-owned Niantic Labs, tracks your location and recommends places it thinks might be of interest to you.

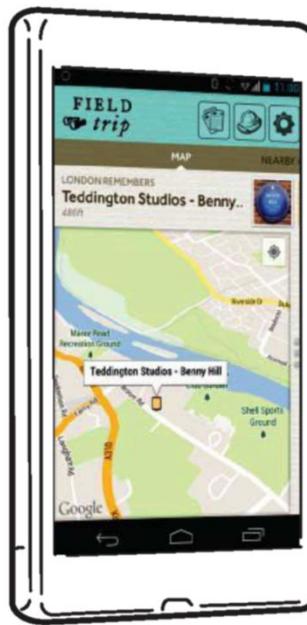
### Ohh, so it's a geography field trip...

Yes, I suppose so. But the fun kind of geography trip. The places it recommends are sourced from the likes of *Time Out*, *Zagat*, *Historic UK* and *Dezeen*, so it's just as likely to recommend something of historical significance or of

architectural interest as it is a good pizza place. Although, just to be clear, pizza is very important.

### Nice. I might give it a try the next time I go on holiday.

Actually, that's not really the idea. It's more for getting to know your own environs: the famous author who once lived a couple of streets away from your house, the artisan mint humbug workshop you didn't realise was operating across the park and so on. By buzzing you with pieces of historical, social or cultural info while you go about your daily life, its aim is to better your knowledge, understanding and appreciation of your home town. Although if you do happen to take it on holiday (to America, that is – it's only available in the US and UK at the moment), it will also act like an informative local guide – albeit one who you have to



pay roaming charges to – telling you where to eat, where to drink, what to take pictures of. It's naff at distinguishing a chaffinch from a Scottish crossbill, though.

### Stuff says

A handy little companion, assuming you live somewhere suitably varied



### Phonealyser

Keep tabs on your booze intake with this iBreathalyser  
[bit.ly/phonealyser](http://bit.ly/phonealyser)



## OUR GADGET LIVES

### Jonny and Ali Brownlee

Olympic speedster siblings, by foot, wheels or water

#### We got given phones after the Olympics

**J**onny (left) I got a gold BlackBerry. A half-touchscreen one. I play Angry Birds on it. **A**li (right) I've got a BlackBerry too but I've been using a Samsung more recently. I like swapping around every so often to mix it up.

#### We use GPS kits when we're training

**A** We've used Garmin over the years, like the Edge 800. It's great to link to a bike's power-output sensors, as well as getting speed and distance. The mapping is good too. I know where I'm going but it's a good backup.

**J** He always gets lost.

// When I'm out riding, I like to get free of technology"

#### We recommend the Huub wetsuit for open-water-swimming beginners

**A** It keeps you warm and stretches in the right areas for a comfortable swim. The shoulders have just 1-2mm of neoprene. Importantly, it gives different levels of buoyancy – the legs are more buoyant than the body, lowering you down to help your stroke cut through water.

#### We're dubious about Google Glass...

**A** When I'm riding, I like to get free of tech. I suppose if you're busy and want to get loads of phonecalls out of the way at the same time that might make them quite useful.

#### But we like gaming...

**J** I'm into FIFA. I love Xbox Live, going online to play anyone is brilliant. I've got a PS Vita too, which is great for all those long-haul journeys.

#### Tech development in triathlon is good

**A** Whatever makes you go faster is better. But people have to see the wood for the trees and remember to train hard too.

### The minislate's accomplice Nokia 105

£13 | [nokia.com](http://nokia.com)

We're thinking about going minidumb. No, not really tiny and really stupid: we mean we're thinking of ditching the smartphone and carrying an iPad Mini or Nexus 7 for all our apps and web browsing, then using this dumbphone exclusively for the old-fashioned business of talking to other people who are far away. If it doesn't work out, we'll have spent a grand total of £13, and we'll still have a basic blower with an unkillable battery for music festivals and natural disasters. Not dumb at all.



### Throwing shapes Tokyoflash Kisai OTO

£95 | [tokyoflash.com](http://tokyoflash.com)

It used to be the case that the best thing about having a Tokyoflash watch was watching people attempting to figure out its befuddling display – previous models have shown the time in binary, or using concentric circles, or by emitting scents to remind you of specific moments\*.

There's no such confusion to be had with the Kisai OTO. When you look at the face of this sound-sensitive timepiece and the bars of its graphic equaliser are jumping, you know exactly what time it is: party time. Or possibly Hammer Time.



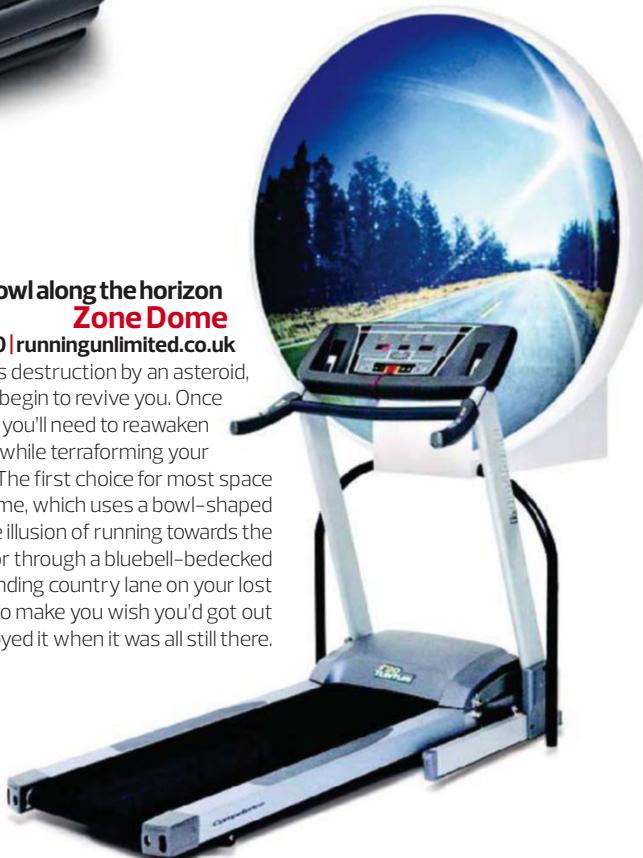
\*Tokyoflash hasn't actually made this one yet, but we wish it would

### Bowl along the horizon Zone Dome

£3940 | [runningunlimited.co.uk](http://runningunlimited.co.uk)

Centuries after the Earth's destruction by an asteroid, your ship's computer will begin to revive you. Once your brain returns to life, you'll need to reawaken the muscles you'll use while terraforming your

allotted exoplanet. The first choice for most space colonists is the Zone Dome, which uses a bowl-shaped display to create the illusion of running towards the horizon along a beach, or through a bluebell-decked woodland, or down a winding country lane on your lost homeworld. It's enough to make you wish you'd got out of the gym and enjoyed it when it was all still there.



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[bowers-wilkins.co.uk](http://bowers-wilkins.co.uk)

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Samsung's do now.



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Smart Interaction



Smart Content



Smart Evolution



Certain features within Smart Interaction may require Internet access. Smart Interaction may not be available in all languages or dialects, and some regional accents may not be recognised. In-store demonstration prior to purchase is recommended. Actual performance of Smart Interaction will vary depending on light levels and background noise. The Smart Evolution Kit will be available from 2013. Smart Content requires Internet access and may not be available in all languages and regions. Available on Samsung SMART TV 7 & 8 Series LED and 8 Series Plasma models only. Apps shown are either available now or coming soon.



## GAMES | MARVEL VS DC COMICS

ON THE HORIZON

DEADPOOL  
PS3/Xbox

While it's fun to pretend you're most superheroes, you don't want to be Deadpool. Yes, he can regenerate after injury, including decapitation, but he's covered in cancerous sores. Yes, he's handy with a pair of swords, but he's insane. Then again, at least he has a sense of humour. And now

that every other comic has been mined by Hollywood, Marvel's 'merc with a mouth' is getting his turn. Expect plentiful swordplay, gunplay and wordplay, all gleefully offensive, and lots of wisecracks to camera. Developed by High Moon Studios, this third-person shoot-n-slash promises to bring the best possible action in the worst possible taste.

INJUSTICE: GODS AMONG US  
PS3/Xbox/Wii U →

The whole point of comics is to take at least two characters with different abilities and make them fight. And that's exactly what DC's new title does: supervillains and superheroes are placed in various supersituations to superbeat the superhell out of each other. And before you start shouting OF COURSE SUPERMAN WILL WIN NO-ONE CAN BEAT UP SUPERMAN, consider the number of smackdowns Kal-El has received in DC comics. Also it wouldn't be a very good game if Superman just lasered his opponent into ash at the start of every round. Instead, you get fairly even battles between the likes of Aquaman, Bane, Batman, Green Lantern, Solomon Grundy and a mecha-suited Lex Luthor. It's been developed by NetherRealm, the creators of the original Mortal Kombat series, so, like Superman, it comes from a good family.

## OUT THIS MONTH



## INCOMING

JUNE  
THE LAST OF US

Fight your way through a post-apocalyptic US in this tense thriller, as a survivor of a plague that has zombified most of the human population.

JULY  
DEADFALL ADVENTURES

Hunt for lost treasure in this Lara Croft-ish, Nathan Drake-esque archaeological jaunt for Windows and Xbox.

AUGUST  
WAR FOR THE OVERWORLD

Fan of real-time strategies like Dungeon Keeper and Starcraft? Then this crowdfunded crypt-constructor should tickle your fancy.

← SUPERMAN (1978)  
Atari 2600

DC was first to license one of its heroes into gameland with this title, which had a 'pause' feature that was pretty exciting in those days. If hit by Kryptonite, Supes simply had to kiss Lois Lane to regain his powers.



**LET THERE BE LIGHT...**



## **NEW CITROËN DS3 CABRIO** ESCAPE THE ORDINARY

Citroën DS3 is now convertible. The perfect fusion of iconic style and technological innovation. With a roof that retracts at up to 70mph, 3D LED rear light clusters and five adult seats, enlightenment can be yours all too easily.

For more information please visit [www.citroen.co.uk](http://www.citroen.co.uk) or call us free on 0800 023 4000.

CRÉATIVE TECHNOLOGIE



Official Government Fuel Consumption Figures (litres per 100km/mpg) and CO<sub>2</sub> Emission (g/km). Highest: DS3 Cabrio THP 155 6-speed manual: Urban 8.0/35.3, Extra Urban 4.8/58.9, Combined 5.9/47.9, 137 CO<sub>2</sub>. Lowest: DS3 Cabrio VTi 82 manual: Urban 5.8/48.7, Extra Urban 4.3/65.7, Combined 4.9/57.6, 112 CO<sub>2</sub>.



## Shouting larger, larger Samsung Galaxy Note 8.0

£tba (due spring) | [samsung.com](http://samsung.com)

Samsung's swish new phone not quite massive enough for ya? You sure about that? OK then, big-hands: for the full pizza-box-to-the-face experience, Samsung has created an 8in tablet that's also a phone, and in truth, that's not as mental as it sounds. After all, why have both a smartphone and a tablet when one is essentially a bigger version of the other? Plenty of people use earphones with an inline mic to make their calls anyway, so follow suit – no-one will know you're getting away with just the one SIM card.



### Mega white thing

Your need-to-knows on Sammy's new tab-phone

#### 1 Bezel faulty?

At 1280x800, the 8.0's screen out-pixels the iPad Mini's, although the Mini's isn't surrounded by a big plastic bezel.

#### 2 Everybody's friend

There are connections aplenty on the 8.0, including microSD and an IR blaster for controlling your TV.

#### 3 Penned-up anger

It comes with Note-fans' beloved S-Pen – to draw appendages on to photos of the people you dislike. Take that, enemies!

## FUTURE STUFF



**Why you need to know about...**

## Sapphire screens

> Will Dunn, writing from a time when 4D is retro

If you own a nice watch, you'll know the terror you feel when you whang its face against a metal handrail, or grind it against a wall, and the joy that follows when close inspection reveals no damage to the glass.

But it's not glass; it's a crystal of sapphire, able to withstand a scrape

against anything but diamond (or another sapphire). With advances in manufacturing, this harder-than-nails material could consign broken phone and tablet screens to the past.

Most folk make do if their phone's screen breaks: a recent survey found one in four iPhone 4 users muddled

on with cracked glass; a peek around Stuff's office reveals a broken iPhone screen and a damaged Galaxy S III.

So why isn't sapphire used? The same reason it's only found in posh

**"A recent survey found one in four iPhone 4 users muddled on with cracked screens"**

watches: cost. At this year's Mobile World Congress, however, I met with GT Advanced Technologies, which makes massive sapphire crystals of over 150kg. These can be cut into screen size with diamond saws, and

the company says it's got the costs down enough for phone production. They even had a few screens there, which people literally had a bash on.

Mass market could be a while yet: GT Advanced's rep said that if Apple wanted a sapphire screen for a new iPhone, they'd say no because GT lacks the operating capacity right now. In the meantime, iPhone 5 users can make do with the bit of sapphire used to protect the camera lens.



Head to [www.stuff.tv/news](http://www.stuff.tv/news) for more tech breakthroughs



### Woahs from a hose

Wobbling a siphon creates impressive results  
[bit.ly/woahhose](http://bit.ly/woahhose)

## CHOICE LAMPS

Fed up with crawling around in the dark?  
Time to lamp up...

### 1 Philips Nick-Knack

£400 | [lighting.philips.co.uk](http://lighting.philips.co.uk)

This floorstanding LED lamp can be rotated and rearranged into loads of different (straight-line-based) shapes.



### 2 Pac-Man Ghost lamp

£35 | [firebox.com](http://firebox.com)

Comes with a remote control that lets you change the colour, so you can chase it around your flat shouting "duka-duka-duka-duka".

### 3 Luci inflatable solar lantern

£20 | [firebox.com](http://firebox.com)

Intended to bring light to third-world situations, the Luci is waterproof, charges from the sun, and is inflatable.

### 4 Book Rest Lamp

£50 | [suck.uk.com](http://suck.uk.com)

A little frosted glass house with a bulb inside; once you've finished reading, pop your book on top and it makes a nice roof. Then go to sleep.

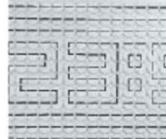
### 5 Tetris light

£30 | [red5.co.uk](http://red5.co.uk)

The blue bottom bar plugs into the wall, the rest can be tessellated as you see fit, with the pieces lighting up as they click together.

### Clockception

A giant digital clock made from 288 analogue ones  
[bit.ly/clockception](http://bit.ly/clockception)



### ADVERTISING FEATURE



## THE LONGEST GOLF COURSE IN EUROPE

IN ASSOCIATION WITH

### ROCKLIFFE HALL DARLINGTON COUNTY DURHAM

Rockliffe Hall, just outside Darlington in County Durham, lays claim to this monster crown. Finished in 2009, the Marc Wesenborg designed course aims to host some big events – with Ryder Cup ambitions – which is why it measures a massive 7,897 yards from the back tees. Kicking off with a 491-yard par-4 gives a flavour of what's to come: Three par-5s over 610 yards, three par-3s over 200 yards and the par-4 11th tops 500 yards. But there is more to the course than length; there's water, sand and subtlety. It is a wonderful, exhausting test – don't expect to break



### Old and horny... Gramovox

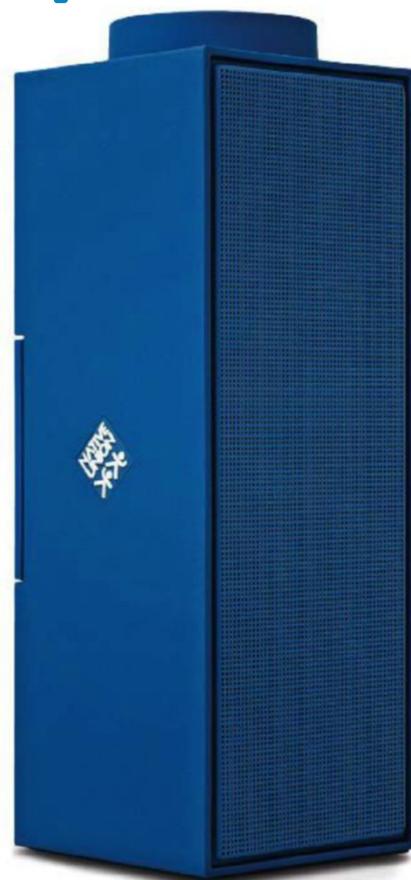
£tba (due autumn) | [gramovox.com](http://gramovox.com)

The most irresponsible thing about Stuff magazine is how we constantly show you all of this sexy new technology, so that you end up dissatisfied with your existing gadget get-up and end up chucking out perfectly usable gadgets simply because a newer one exists. If we are to survive our own machinations, we must repurpose every piece of tech ever made, starting with the humble ol' gramophone. We should update it with Bluetooth to build a smartphone speaker that is responsible, attractive and sounds gre... oh, already done.

[ Vs ]

### ...lasts all night Native Union Switch £130 | [nativeunion.com](http://nativeunion.com)

The Switch might not be as sustainable as the Gramovox, but it'll sustain your next beach party a lot longer. In fact, while most Bluetooth speakers tend to run out of juice around the eight-hour mark, the Switch will rock and roll all night, Kiss-style, clocking in at 14 hours. It'll even share its capacious battery with up to two USB-powered devices, providing you with the tuneage to dance until dawn. Unless you're living in the Arctic circle during the depths of winter, that is. Although if you are, it's probably a bit too chilly for the beach anyway.



IN ASSOCIATION WITH

# SONY

make.believe

## bigest range, best advice



Get to know the full alpha product range, plus a selection of lenses and accessories at your Alpha Centre of Excellence. You can even experience our unique award-winning Translucent Mirror Technology in action, which allows you to capture up to 12 frames per second. Your local Centre of Excellence store will be hosting a range of events, so you can get the right advice and your toughest questions answered by our expert staff. There's no better place to meet your next camera.

**Find your local Alpha Centre  
of Excellence Event at  
[www.sony.co.uk/aceEvents](http://www.sony.co.uk/aceEvents)**



Camera World.....Chelmsford  
Cardiff Camera Centre.....Cardiff  
Cardiff Camera Centre.....Newport  
Castle Cameras.....Bournemouth  
Devon Camera Centre.....Exeter  
Digital Depot.....Stevenage  
Great Western Cameras.....Swindon

Harrison.....Sheffield  
London Camera Exchange.....Bristol (Horsefair)  
London Camera Exchange.....Chester  
London Camera Exchange.....Colchester  
London Camera Exchange.....Leamington Spa  
London Camera Exchange....Southampton (High St)  
Pantiles Cameras.....Tunbridge Wells

Park Cameras.....Burgess Hill  
Warehouse Express.....Norwich  
Wilkinson Cameras.....Preston  
Wilkinson Cameras.....Southport  
York Camera Mart.....York  
UK Digital Ltd.....Clitheroe  
Peter Rogers.....Stafford

## Backyard boeing

Russian man flying in what appears to be a climbing frame  
[bit.ly/homemadeicopter](http://bit.ly/homemadeicopter)



### All aboard Focuswill Coolship from US\$90 | [indiegogo.com](http://indiegogo.com)

Android PCs are small, affordable and silent, but thanks to the mobile computing arms race, they become obsolete quicker than chicken sashimi on a hot day. Not the brilliantly named Coolship. When a more powerful mobile chip is available, Coolship will build a new core board for it. Open the hatch on the back of this keyboard-sized PC, pop out the old core board and replace it with the new one, keeping the body of the machine but upgrading it with a more powerful brain.

### For the people (who aren't mechanics) Automatic US\$70 | [automatic.com](http://automatic.com)

You know how your dad goes on about how he always knew how to fix his car?

Well, Automatic is your riposte. The dongle plugs into your car's diagnosis port (any car less than 20 years old should have one) and the iOS app connects via Bluetooth, giving you loads of lovely data on how you're driving and detailed info on any problems that occur.

Sadly it's US only at the moment, so you'll have to put up with the paternal posturing for a little while longer.



### Clever cogs Overdrive Robotics SmartBot €160 | [overdrivrobotics.com](http://overdrivrobotics.com)

We've already seen a few telepresence bots that use a smartphone as their eyes and brain, but with the SmartBot, it's the mind part that matters. Unlike previous phonedroids such as the Botiful and the Romo, the SmartBot really makes the most of its borrowed brain, performing such feats as image and speech recognition, orientation and navigation. Best of all, it's expandable. You can buy attachments such as a pincer, BB gun or trailer, or make your own – it has fixing points for Arduino and Lego.



## ADVERTISING FEATURE

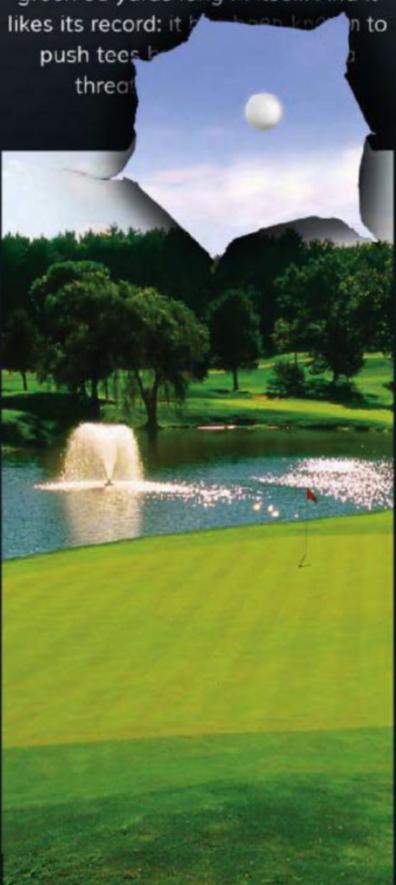


## THE LONGEST GOLF COURSE IN THE USA

IN ASSOCIATION WITH

## INTERNATIONAL CLUB BOSTON MASSACHUSETTS

The International Golf Club in Bolton, Massachusetts was originally built in 1899 but has undergone substantial reconstruction and extension over the next 100 years. Now, the Pines course is an 8,325-yard par-73. If golf club technology had not improved since its inception, it'd be a par-83. Since 1957 it's held the title of the longest track in the States – and the numbers are mind-blowing. A closing par-5 measures 656 yards, the seventh is a 277-yard par-3, and the fifth is a 715-yard par-6, with the green 91 yards long in itself. And it likes its record: it has been known to push tees back by 100 yards to threaten the world record.



IN ASSOCIATION WITH



### Krei zis

Crysis 3 really is die beste one yet  
[bit.ly/kreizis](http://bit.ly/kreizis)

## IN DETAIL THE DUAL-DISPLAY, E INK SMARTPHONE

# YotaPhone

£199 | [yotaphone.com](http://yotaphone.com)

The biggest challenge for a smartphone manufacturer is battery life, and the biggest drain on your blower's battery is its screen. The YotaPhone aims to solve this problem by giving you a secondary display made using power-saving E Ink. Yota take a look at this...



The front screen is a **4.3in, 720p display that offers the standard Android Jelly Bean experience.**

A smart move; even tech megaliths such as Samsung struggle to make Android skins look anything other than dodgy, so the Yota is right to go with the same simple, clean look you get on the Nexus 4.

Yota hasn't sacrificed hardware to make room for the two screens.

**A Snapdragon S4 chip (the same as that in Nokia's Lumia 920) and 2GB RAM** provide plenty of grunt, while storage is a healthy 32GB or 64GB. Even if you mostly use the colour screen, a 2100mAh battery should get you through the day.

You'll notice the standard Android buttons are missing but the bar where they normally sit remains. That's because **the Yota uses gesture control**: a horizontal swipe goes to the home screen, a half-swipe replaces the back button and a vertical swipe sends whatever's on the front screen to the back.

This is Yota's USP: the back E Ink screen, which lets you read an ebook or article without draining much power. It won't replace your e-reader, but it's ideal for settling down with *What Hi-Fi? Sound and Vision's* latest epic 20,000-word DAC review on the bus.

Yota isn't actually touting reading as the E Ink screen's primary use. **Because it takes very little energy to update the display (and none when information is static), it's handy for notifications.** So a Twitter feed can roll along, or news can refresh every few minutes, without a major cost to battery life.

### Stuff says

Yota's dual-screen gambit could just be a stroke of genius. One to watch intently

### Alternatively...

**Google Nexus 4 + Kindle Paperwhite from £240 + from £110 | [google.com](http://google.com) + [amazon.co.uk](http://amazon.co.uk)**

They won't both fit in your pocket, but they'll probably match the cost of a Yota and offer superior Android and e-reader experiences. Only without the flippin' fun.



TECH SPECS	
Display	4.3in LCD, 1280×720 (front); 4.3in E Ink (rear)
OS	Android 4.2 Jelly Bean
CPU	Dual-core Snapdragon S4 @ 1.5GHz
Camera	12MP, 1080p@30fps (rear); 1.3MP, 720p (front)
Connectivity	Wi-Fi, LTE, 4G, NFC, Bluetooth

### My So-Called Throne

Game of Thrones as it would have looked in 1995  
[bit.ly/thrones95](http://bit.ly/thrones95)



ADVERTISING FEATURE



#### Cat caller

#### Cat B15

£300 | [cat.com](http://cat.com)

When the assassins finally did in Grigori Rasputin, the 'mad monk', it was only after he'd been stabbed, poisoned, shot, shot again, stabbed again, and then thrown into a freezing river. Cat's new Android Jelly Bean blower would survive the river – it'll take a 1.8m drop and can swim for half an hour – and quite possibly the stabbings, thanks to its reinforced body and extra-thick Gorilla Glass 3 screen. You could pour as much poison on it as you like, too, because it's a phone – just try not to make any calls until you've washed it. Oh, and don't shoot it. That's a bit much.



#### Burning bright

#### Onitsuka Tiger Golden Spark

£70 | [onitsukatiger.com](http://onitsukatiger.com)

Since time immemorial (well, the 1970s) Onitsuka Tigers have been admired for their grace and power. They gave birth to the cheetah-like ASICS subspecies, among the fastest on Earth, and since then the two have shared DNA. Observe the new Golden Spark, a trainer of leisure that incorporates the tech used in its high-end running shoe cousins: breathable rubber structure, sweat-wicking, anti-microbial innards, memory foam heel cups. Sadly, these beautiful trainers are now being hunted by poachers, who grind them up for traditional medicine, but you can adopt a pair for just £70.

#### Cat nav

#### G-Paws

£50 | [g-paws.com](http://g-paws.com) [site not up yet]

Where does your cat go at night? It could be he just wanders around, scaring smaller animals and doing that gross spraying thing on your neighbours' laundry. Or maybe he's an unlicensed cabbie. The G-Paws weighs just 15g, so it won't bother your on-the-go moggy, but it will record where he's been all night, so you can see if he's getting fed by someone else, how far he ranges and, if he's making a crafty cash income picking up wasted clubbers, exactly how many miles he's clocking up.

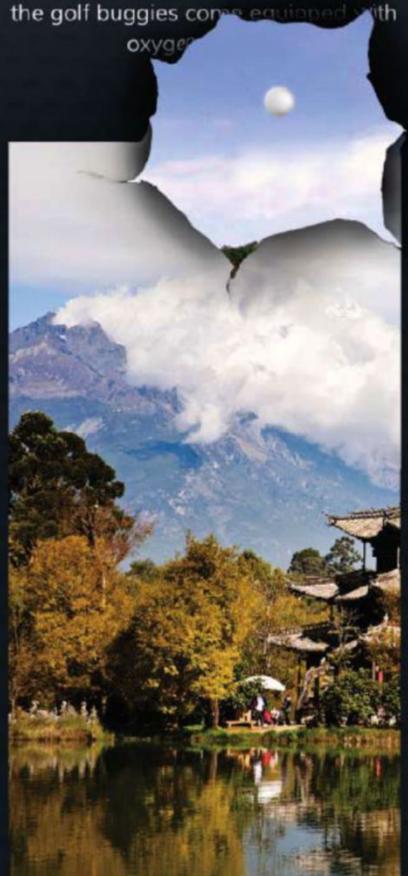


## THE LONGEST GOLF COURSE IN THE WORLD

IN ASSOCIATION WITH TaylorMade

### JADE DRAGON SNOW MOUNTAIN LIJIANG, YUNNAN, CHINA

Jade Dragon Snow Mountain Golf Club in south-west China is the longest in the world, according to the Guinness Book of Records. Set in the shadow of Himalayas, it is also the second highest course in the world – and with the thin air at altitude comes huge ball-flight; you hit it 20 per cent further than you would at sea level. And you need every inch of that 20 per cent. The 18th measures in at 711-yards (par-5), the shortest par-3 is 236 yards, and that's the only par-3 shorter than 260 yards. In total, it's a whopping 8,548 yards – no wonder the golf buggies come equipped with oxygen tanks.



IN ASSOCIATION WITH

TaylorMade

**Throw-bo-dog**

Those death-machines just keep getting better  
[bit.ly/throwbodog](http://bit.ly/throwbodog)

# Retro chic

# 1994

## Panasonic FZ-1 3DO

eBay price £100

### What's the story?

"If you think you've seen graphics," said *Time* magazine in 1993, "wait 'til you check out the jaw-dropping visuals offered by this interactive system." The 3DO was the first mass-selling, CD-playing, 32-bit, fifth-gen console. It had an odd business model: the company behind the platform, 3DO Interactive, only licenced it, meaning consoles could be made by anyone; there were 3DOs by Panasonic, Sanyo, Creative and LG. Games were well-made, funded by film studios and fairly cheap, thanks to low licensing fees, but this approach was the 3DO's undoing: Panasonic only made money by charging £500 for a machine. When Sony's PlayStation arrived at £300 (which soon dropped to £200), the 3DO was priced out of the market.

### Why should I want one?

Because you collect old consoles and want to open a retro gaming café. Your Panasonic FZ-1 will be more popular than the Atari Jaguar because the Jag's graphics weren't great, while the 3DO's were brilliant. The 3DO Super Street Fighter II Turbo will be more popular than the SNES version and people will spend hours on lizard-based platformer Gex.

### What to look for...

People who order a single Americano and spend five hours completing *Wing Commander III* (starring Mark Hamill). They need to order some cake or leave.

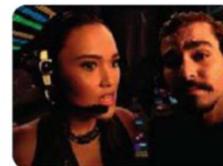


### STUFF'S TOP FOUR 3DO games



#### Fatty Bear's Birthday Surprise

As conflicted antihero Fatty Bear, you journey both through the home of your sleeping hosts and your own terrifying emotions. You also try on hats and bake a cake.



#### The Daedalus Encounter

You play a former space marine who is now a brain in a jar, controlling a remote flying probe that explores a derelict alien spaceship with Tia Carrere. Quite a premise.



#### The Need for Speed

The veteran series was born on the 3DO, and made a showcase for the console's graphics. It created not just one series of games, but a genre of realistic racers.



#### Plumbers Don't Wear Ties

Perhaps the worst game ever, dating sim PDWT consisted of little more than a slideshow. Pretty much a PowerPoint presentation about the lives of two idiots.

**Also in 1994** Channel Tunnel opens; George Foreman becomes world heavyweight boxing champion, aged 45



#### Pie in the Sky

Richard 'Uncle Monty' Griffiths plays a big fat policeman who is also the big fat head chef at his own restaurant, as if those weren't two very demanding full-time jobs. A mash-up in more ways than one.



#### Therapy? – TroubleGum

With grunge limping wearily across the Atlantic, it was up to pop-metal Ulstermen Therapy? to prove that British music could be every bit as angry, depressed and bitingly cynical as anything US bands could muster.



#### Iain M Banks – Feersum Endjinn

Written partly in phonetics, this sci-fi novel is set on an Earth that has been mostly deserted by humanity, and upon which those remaining are facing extinction. A bit like Rhyl.



#### Rapa Nui

On a pre-outsider-contact Easter Island, the inhabitants' lives are made difficult by the class system, deforestation and a religion that demands they put up a load of enormous stone heads.

# FOR THE LONGEST GOLF COURSES

**YOU NEED THE RIGHT GEAR. THAT'S WHERE THE R1 DRIVER COMES IN**

If you ever find yourself on one of the longest golf courses in the world, you'll know quickly just how unforgiving the sport can be. Slogging round over 7km of fairway will test strength, skill and stamina. You need all the help you can get.

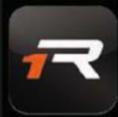
TaylorMade's new R1 driver has taken ground-breaking, adjustable driver technology kept all the advances and then made it more simple to use, developed a tidy iPhone app (see below) and now it hits longer – a whole lot longer. There are three adjustable elements: changing the loft alters the ball's launch angle and its flight. In fact, this is one clubhead with 12 loft options. Altering the face angle helps make a flush, square contact and improves distance. Adjusting weight arrangements affects your shot shape.

Fancy a fade for the round? Easy.

The R1's head features alignment aiding crown graphics that focus the eyes into the sweet-spot. So, this is a driver that breeds confidence on the tee and at address: pretty useful if there's over 700 yards to go.

## THAT EXTRA-DISTANCE TECH IN FULL

- Thick-thin crown provides high launch, fast ball speed and low spin
- Inverted Cone Technology milled inside the face expands portion that delivers high ball speed
- Improved aerodynamics reduce drag over the head to increase clubhead speed



## TAYLORMADE THE R1 TUNING APP

The app is a simple way to make the most of your R1. It walks you through the easy tuning process, finding out what best suits you and your game, then explains how your R1 should set up.



Smart, simple and very effective. It can also find your nearest TaylorMade professional fitter if you get stuck.

## SIGN UP TO TAYLORMADE'S PLAYERS' CLUB

at [www.taylormade.com](http://www.taylormade.com) for special offers and to be the first to find out about product launches



TaylorMadeGolf



@TaylorMadeTour



TaylorMade®



## Stun Ply With Me

Artist runs 15,000 volts through a sheet of wood  
[bit.ly/stunplywithme](http://bit.ly/stunplywithme)

## CALENDAR

APRIL 2013

### MUSIC



**01**

#### The Flaming Lips – The Terror

Still sipping at the fountain of originality 30 years on.

### EVENT



**03**

#### Gadget Show Live

Imagine the biggest branch of Currys you've ever been in, then multiply it by a thousand. You're not even close.

### GAME



**10**

#### Shootmania Storm

If you've had a crack at the open beta, you'll know that this game is all about rocket launchers. Also map creation – but mostly the rocket launchers.

### MUSIC



**08**

#### The Knife – Shaking the Habitual

The Swedes return seven years after the superb Silent Shout.

### FILM



**12**

#### Oblivion

Tom Cruise returns to sci-fi as a kind of human Wall-E, only crossing paths with Morgan Freeman as a gnarly-looking resistance leader.

### EVENT



**19**

#### Evil Dead

A big-budget remake of the greatest low-budget horror ever made? We pray it's as good as Bruce Campbell says it is...

### GAME



**26**

#### Star Trek

We at Stuff are aggrieved we can't join Starfleet (wrong century, apparently) so this Kirk'n'Spock co-op will have to do.

## INCOMING

Monolithic gadget milestones for your socially integrated, cloud-connected, device-independent personal organiser



### GAME

**MAY**

#### METRO: LAST LIGHT

Think your daily Tube ride is bad? Well, in this game there's been a nuclear holocaust and terrifying mutants are all over, so there's like one train a day.

### FILM

**JUNE**

#### NOW YOU SEE ME

Jesse Eisenberg, Isla Fisher and pals play a troupe of magicians who steal money from the loaded and give it to their audiences.

### FILM

**JULY**

#### R.I.P.D.

A young cop is killed and resurrected by the Rest In Peace Department, setting out to solve his own murder. A waste of taxpayers' cash, surely.

### GAME

**AUGUST**

#### GRIM DAWN

Using *Titan Quest* series' architecture, this RPG is set in Victorian times – back when there were huge monsters, demons and magic. Obviously.

Hear the truth.



# DOCK IT. CHARGE IT. ROCK IT.

**JBL OnBeat™ Micro.** The first portable speaker dock for **iPhone 5**.

Shop online at [uk.jbl.com](http://uk.jbl.com) and  
Available at John Lewis



## FIRST TEST

# HTC ONE

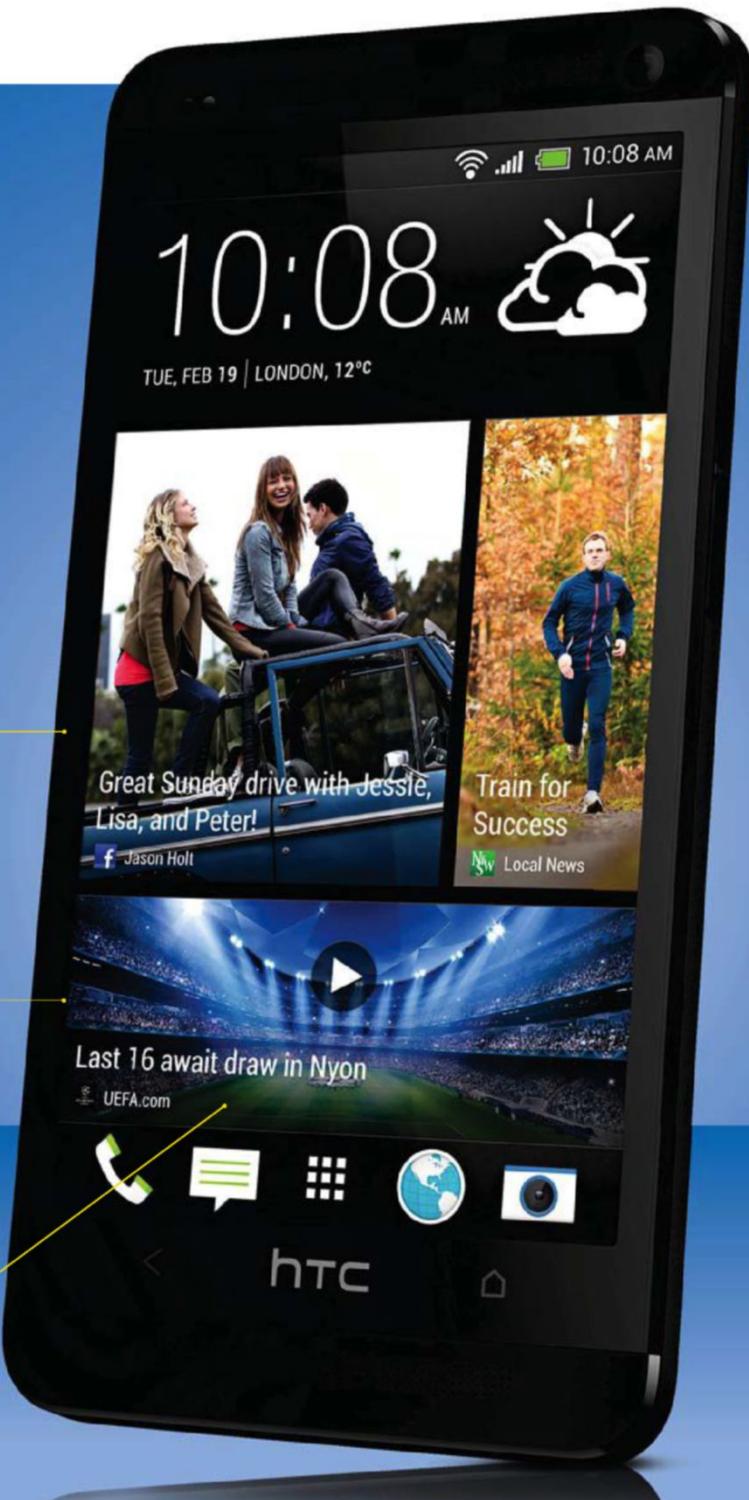
from £520 | [htc.com/uk](http://htc.com/uk)

**Samsung and Sony shout louder but HTC is poised to jump from the shadows with the One, a heady blend of 1080p screen, oodles of quad-core power and an UltraPixel cam. Is this the One we've been waiting for?**

The One is an object of rare beauty: its comfortably curvy aluminium body with diamond-cut edges and reassuring weight make it a handset you'll want to show off. Slim plastic strips outline the two integrated antennae, while speaker grilles top and bottom give it a dose of retro charm. You can't swap the battery or slot in a microSD, but we think the ingot-like build is fair recompense.

**This is the best screen we've ever seen on a phone.** Really. It's 4.7in and 1080p, giving it a ridiculous 468ppi – but that's only half the story. Colours are vibrant, whites are pure and movies look superb from any angle. Sound is also great: punchy and detailed, if not as weighty as some. Just avoid the Beats Audio mode.

The One runs HTC's latest Sense 5 skin above Android Jelly Bean and we like it. It drops the multi-tasking button in favour of a double-tap of the home button, which is a neat touch, and there are plenty of clever new features (see panel right). Some of the icons are a little low-res, but overall it's a big win for HTC.



[Words Sophie Charara Illustrations Alan Eldridge]

## NOW ADD THESE

**HTC Media Link**  
£80 | [htc.com](http://htc.com)

HTC's answer to the Apple TV, this box can be plugged into your TV's HDMI port to stream music and movies from the One to the big screen. It supports 1080p mirroring and is nicely portable too.

**HTC External Battery Bank**  
£45 | [htc.com](http://htc.com)

This dinky juice-box contains a 6000mAh battery bank with USB and microUSB ports. So if the One gets sleepy before bedtime, you can juice it up again – and thus ensure you don't get BlinkFeed withdrawal symptoms.

**HTC One CAR D160 Kit**  
£45 | [htc.com](http://htc.com)

This kit automatically activates the One's Bluetooth to connect to in-car systems and brings up HTC's big-buttoned car interface. This gives you easily proddable navigation, dialling (for when you're parked, of course) and tunes.

**Klipsch Image S4A**  
£75 | [amazon.co.uk](http://amazon.co.uk)

When you're not enjoying the HTC One's impressive built-in speakers, these Klipsch in-ear 'phones will serve up detailed audio via their downy-soft tips, all in the privacy of your own ears. They even include a remote.



This a ludicrously quick phone. With an EE 4G SIM inside, web pages appear instantly, while the One's quad-core chip skips through multi-tasking, games and Google Maps' satellite view. It's almost entirely lag-free. Battery life is average, though – **in normal use it'll last a day, less for power users.** The Power Saver and Sleep Mode will be your friends here.

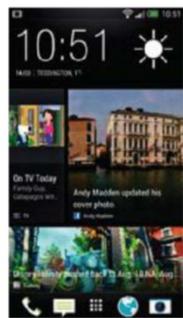


**The UltraPixel gamble (fewer, but larger, pixels) has partly paid off, making the HTC One's 4MP shooter remarkably versatile:** it snaps realistic colours, is class-leading in low light and has effective image stabilisation built in. Full HD video is also impressive, but stills don't stand up to being blown up large. It's ideal for 4" x 3" prints, though.

## SENSE 5'S SPECIAL SKILLS

### > BlinkFeed

Think of BlinkFeed as an oversized Flipboard widget. It pulls in image-heavy news stories from partners and your social networks to stream down one of your homescreens. The choice is limited for now, so there's a chance your favourite media outlets won't have signed up yet – but that should soon change. Either way, it's an energetic alternative to WP8's Live Tiles and delivers customised news with no little style.



### > Sense TV

In the app drawer you'll find TV, which, once you've selected your Freeview/Virgin/Sky subscription, pulls in programme guide info – though it's not that pretty. You can also set up the One to control your TV and home cinema kit via its power button, which doubles as a handy IR blaster. A stunner of a smartphone and a universal remote? Yes please, HTC.



### > HTC Zoe (...as in 'zoetrope')

Zoe really gives your gallery some soul – by turning it into a set of Harry Potter-style living pictures. By capturing footage and extra snaps before and after each shot, you can scrub through the moment post-Zoe to pick the best frame – it's seriously handy. Unfortunately, it also results in a rapidly-expanding collection of photos, Zoes and videos, which could end up being a chore to keep under control.



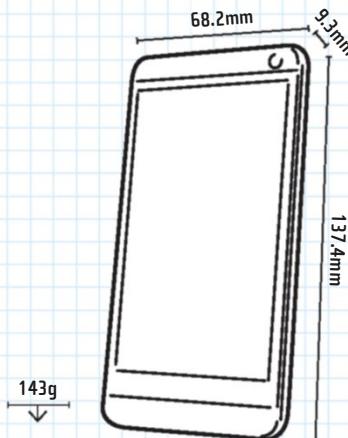
## [ Vs ] Sony Xperia Z

£530 | [sonymobile.com](http://sonymobile.com)

The Xperia Z has a more relaxed colour palette for watching flicks, some of the best audio skills we've heard from a phone and crazy waterproofing. But the Sony's angular chassis can be uncomfortable for some, unlike the perfectly formed HTC, and the viewing angles are less impressive than those of the always-stunning One screen. For most gadgeteers, the One comes out on top.



## TECH SPECS: HTC ONE



**Display** 4.7in, 1080x1920 (468ppi)

**OS** Android 4.1.2 with HTC Sense 5

**CPU** Quad-core Qualcomm Snapdragon 600 @ 1.7GHz

**Storage** 32GB/64GB (no microSD)

**RAM** 2GB

**Camera** 4UP, 1080p@30fps (rear); 2.1MP (front)

**Connectivity** 3.5mm, Wi-Fi, Bluetooth 4.0, aptX, IR, microUSB2.0

**Battery** 2300mAh

## STUFF SAYS

★★★★★

With killer looks and to-die-for performance, the One is our new Android love affair

## HTC One The first hour

01

Hello cold aluminium, my old friend. Mac-tastic

02

Wish that Beats Audio logo would disappear

03

Curves mean the One wobbles mid-prod

07

Lightning quick and apps install in a flash

15

Wow, what a screen. Must. Tear. Eyes. Away.

25

Thanks to Zoe, Dropbox is full of identical pics

40

Quickly get used to off-centre home button

45

Switching between cameras with a swipe...

60

...but stills don't look so good zoomed in onscreen  
Can't stop getting it out of my pocket. I'm in love

## FIRST TEST

# SAMSUNG UE55F8000

£2500 | [samsung.com/uk](http://samsung.com/uk)

The first of 2013's TVs has landed and it looks a doozy. After all, this 55in edge-lit LED screen promises a shiny new Smart Hub, new features and better all-round performance. Does that all add up to the best TV you can buy? Let's see...

Last year's Samsung screens dazzled with vibrant colours and impressive contrast – but you can sometimes have too much of a good thing. The UE55F8000 has the mix just right: **colours are subtler, with a natural balance, while black levels are inky deep**. And there's enough clarity and detail to count every freckle on Emma Stone's face. Not that we've tried...

The new metal arc stand has been designed to create a 'floating display' effect, and while it looks sufficiently floaty, there is an issue: the stand is as wide as the screen itself, which at 120cm is too long for your standard-issue AV rack and **leaves the whole thing prone to tipping forward**. Not good for the nerves after splurging two and a half grand on a telly.

Lurking behind that 55in Ultra Clear Panel lies a **powerful quad-core processor** – a world first for smart LED TVs. Its addition brings a smartphone-esque slickness to proceedings: flicking through the redesigned Smart Hub smart TV interface's panels is swift, while web browsing is noticeably quicker too.

Words Kashfia Kadir Illustrations Alan Eldridge



## NOW ADD THESE

### Western Digital MyBook AV-TV from £90 | [wd.com](http://wd.com)

Plug this AV-certified hard disk into one of the F8000's three USB ports and hey presto! You have a PVR. Even watch one channel while recording another, utilising the TV's dual tuners. 1TB and 2TB versions are available.



### Samsung Galaxy S III £500 | [samsung.com/uk](http://samsung.com/uk)

Keep it in the family: download the Smart View app to feed live shows from your TV to the S III, so you'll never miss a second during those tea-making kitchen sojourns.



## BUNDLED WITH THE F8000

### 3D glasses

Despite trends among the fashionable folk of the world and contrary to what is supposed to make a person geeky, we're still loath to wear glasses. But these 3D specs are light and it's not as if we'll be wearing them to the pub. You get two pairs included with the TV.



### Smart Touch remote control

Samsung's sleek remote deserves its own presentation cushion, not to be lost down the sofa. Swipe across it, speak into it, even scrawl channel numbers on to it. Buttons? Pah! Buttons belong with Ceefax and visions of nuclear armageddon.

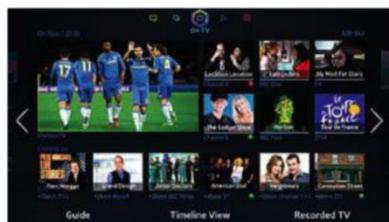




**A 5MP camera pops out of the top**  
**Jack-in-the-Box-style** to fulfil your Skyping needs and bring Samsung's motion-control feature to life. It's much improved, with effective two-handed gesture recognition for waving through menus and panning and zooming images. You might have to find a new place to put your Wii's infra-red sensor or Kinect, though.

We often bemoan the thin, harsh sound that plagues most flatscreens, but not so here: two mid/treble drivers are supplemented by two woofers, providing **a total 40W of oomph for meatier and cleaner audio quality**. You might want to hook it up to a surround system, but we were quite happy listening to it on its own.

## SMARTHUB GROWS, ER, UB



### > Smart Hubba Hubba

The new Smart Hub is swanky. Broadcast TV, apps, social networking (Facebook, Twitter), streaming services (iPlayer, LoveFilm, Netflix and more) and stored media are presented across a slick, user-friendly interface that means you're only ever a click or swipe from what you want.



### > A welcome S-uggestion

Not just a pretty face, this Sammy's also a clever clogs. The S-Recommendation tool notes your viewing habits and offers similar shows and online content for your perusal. It gets even more personalised over time, so if it suggests something like *It's Always Sunny in Philadelphia* during this week's *Question Time*, it's finally got you pegged.



### > Speakeasy-ish

Voice control is improved after its debut in last year's UE55ES8000: it's faster and you speak into the Smart Touch remote rather than yelling at the telly. But it's not quite Tony Stark's JARVIS: it still struggles with simple phrases, and some words get lost in translation. So fess straightening.

## [ Vs ] Sony KDL-55HX853 £1800 | sony.co.uk

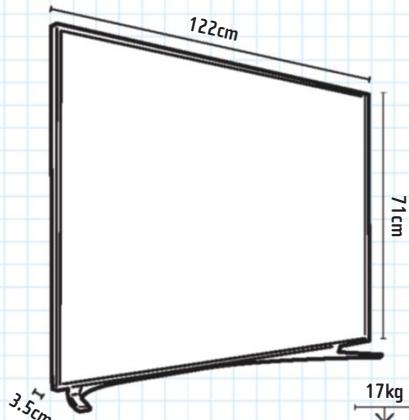
With the same screen size, lovely smooth motion and deals available to buy it for a lot less, Sony's 2012 range-topper is one hell of a TV.

But the new Samsung shines with crisper detail and updated features, so Sony will need to up the stakes again this year. Bring it on.

**Stuff says ★★★★**



## TECH SPECS: SAMSUNG UE55F8000



**Screen** 55in, edge-lit LED

**Resolution** 1920x1080

**3D** Active-shutter, x2 glasses included

**Tuners** Freeview HD, Freesat HD (x2)

**USB HDD recording?** Yes

**Control app** Android, iOS

**Connectivity** Wi-Fi, Ethernet, HDMI (x4),

USB (x3), component/composite, RGB

SCART, optical digital, headphone, RF (x3)

**Remote** Standard, Smart Touch

**Camera** 5MP

## STUFF SAYS

★★★★★

A stunning screen and smarter features have thrown down the gauntlet for TVs in 2013

## Samsung UE55F8000 The first hour

02

Ooh, that's a nice screen... but the stand is a bit wide

04

Too wide! My new £2.5k telly nearly capsized

08

Out-of-the-box picture is garish. Time to optimise...

14

A pop-out camera. Nice. Stealthy, like a ninja

20

Connecting to network. Time for a tea break then

27

Flicking through apps is quick, easy and addictive

33

Which is less daft, waving or speaking at the TV?

42

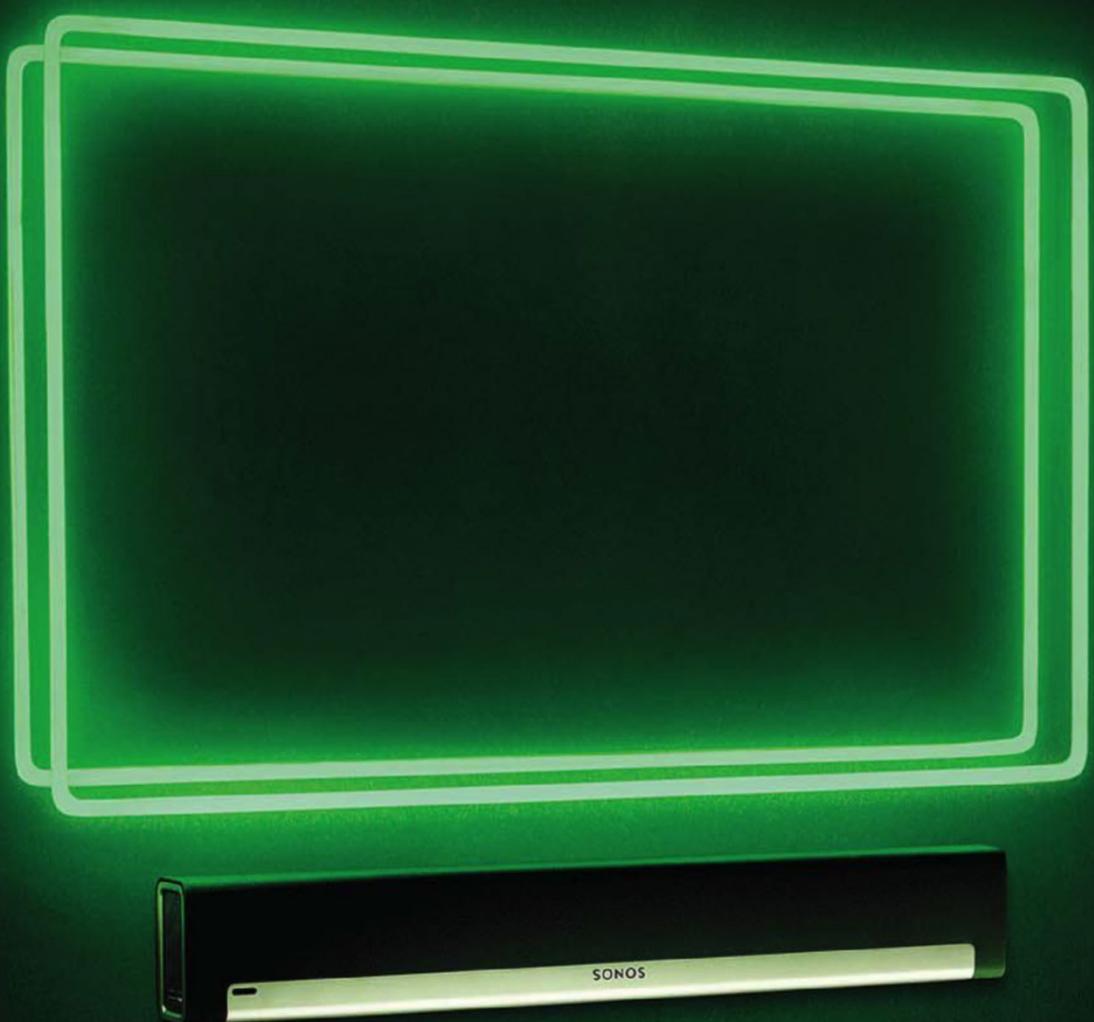
Using both hands to zoom/rotate images. Neat

56

Where's the menu? OK, a few clicks and I'm back

60

Sweet. Trace a number on the remote to flip channels



# SONOS

PLAYBAR UNLEASH YOUR TV SOUND. UNLEASH ALL THE MUSIC ON EARTH.



# GADGET + DOCTOR

Stuff

Email the experts [stuff@haymarket.com](mailto:stuff@haymarket.com)

## MAIL OF THE MONTH

Regale us with your gadget gripes. This month's winner bags a JVC GZ-E15 camcorder, worth £200



### Babewatch

**Q** I'm due to become a first-time father in about three months so I'm looking for a way to keep an eye on the baby when I'm out and about. I need something that has both sound and video (preferably in hi-def), with Wi-Fi connectivity to stream to my Android phone and my wife's iPhone. Ideally I'd like to keep the budget below £250.

**Garry Thorn**

**A** Firstly, Garry, we'd like to point out that owning a baby monitor doesn't mean you can just



wander off and leave the sprog to fend for itself. As long as you promise not to do that our very own Will Findlater swears (when his son's out of earshot) by the Withings Smart Baby Monitor (£240, [apple.com](http://apple.com)), which has free apps for both iOS and Android. It even has a built-in speaker that lets you talk back to your little 'un using the phone. Here, have a JVC GZ-E15

camcorder on us to capture some of those precious childhood milestones: first steps, first word, first iPhone. You know, the usual.

### Flexible future

**Q** A couple of years ago I read about an A4-sized e-reader. It was thin, light, and surprisingly flexible. It would have been perfect for carrying around my sheet music: light enough to sit on a music stand and big enough to read a single page while playing. Are you aware of anything available like that, or in the pipeline?

**Chris Hammond**

**A** You've just described Plastic Logic's flexible displays, Hambo. A mono version surfaced at CES in 2010 but the company now has a colour version that could even make an appearance in Apple's iWatch (see p56). Check out our next issue for a full feature on bendy tech.



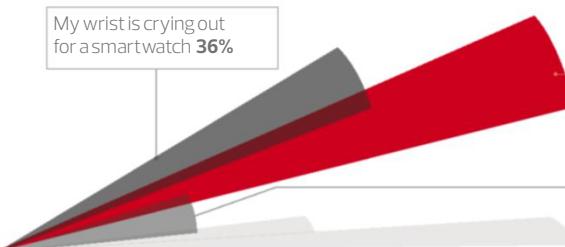
### Sound advice

**Q** I have two small children so I bought some Bose AE2 headphones for watching movies after they've gone to bed. I plugged them into the TV and stuck on *The Dark Knight Rises*. Disappointment is an understatement. Would a DAC work with my PS3 and the AE2s to provide better sound for my films?

**Steve Fretten**

**A** If you're keen to keep hold of the AE2s a DAC with optical input and headphone port such as Audioengine's D1 (£150, [audioengineusa.com](http://audioengineusa.com)) will do the job. If you're using your PS3 the obvious answer is a pair of Sennheiser's U320s (£100, [amazon.co.uk](http://amazon.co.uk)), which take the sound directly from the USB port.

My wrist is crying out for a smartwatch 36%



Put Google Glass right in my face 55%

I want techno trousers, whatever they do 9%



### You're surrounded

**Q** I'm thinking about getting a Denon DM39DAB as I had a previous iteration of one of these beauties a few years back but had to sell it as I was a poor student at the time. Does Denon offer a surround sound amp that would give equal stereo performance to the DM39DAB so that I could kill two birds with one stone?

**Colin Dean**

**A** All but the best surround amps struggle when it comes to stereo sound, so you're looking at £1000+ to get close to the DM39DAB. Even then you may find the Denon has better detail and rhythm, although a surround amp will sound weightier. The differences aren't massive, mind, so the AVR-2113 (£550, [denon.co.uk](http://denon.co.uk)) is a good compromise.



### Grand pics

**Q** I'm going to the Italian Grand Prix this year and want a decent compact camera to take some shots of the action. I don't want the bulkiness of a DSLR but want to take super sharp photos of the race. My budget is £450.

**Wynn Owen**

**A** You're probably going to need more than a compact, Wynn. For amazing speed in a small size get a Nikon J2 (£330, [wexphotographic.com](http://wexphotographic.com)) and add the 30–110mm lens for £180. A bit over budget, but worth it. Otherwise Panasonic's Lumix DMC-TZ40 (£320) has a 20x zoom but it won't even come close to the Nikon setup.

### DIY Droid

**Q** I've been looking for a mini Android PC to plug into my TV and mess about with. I've looked at media streamers like Boxee before but I'm keen on Android as it's customisable and has plenty of apps. I want to stream media, surf the web a little and maybe play a couple of games but I don't want to blow big money on it. What do you suggest?

**Ben Parker**

**A** It's a relative unknown to us, Parky, but the Pivos Xios DS (£125, 'exclusively' available from [xiosds.co.uk](http://xiosds.co.uk)) is the development platform for XBMC, which is the best media streamer on Android. It's loaded with connections and ports, and packs plenty of power for browsing. In theory at least – we'll get a test in soon.

### Domestic bliss

**Q** My husband and I own different phones: he is an Android man and I love my iPhone 5. We spend a lot of time in the kitchen and I'd like your advice on what the best speaker dock would be to cater for both of us. Is there anything out there that has both iPhone and Android compatibility?

**Jing Jiang**

**A** When it comes to docks the best way to avoid platform clashes is to go wireless. There are Android apps that will hack your husband's phone to work with AirPlay but our favourite dock is JBL's Bluetooth-equipped OnBeat Xtreme (£450, [uk.jbl.com](http://uk.jbl.com)). If you can hold on for a bit, a Lightning-compatible version is on the way.

**www.Stuff.tv**  
**HYPE-O-TRON**  
Which wearable tech would you rather have in your wardrobe?

Join the debate at:  
[facebook.com/joinstuff](http://facebook.com/joinstuff)

PLAYBAR UNLEASH YOUR TV SOUND. UNLEASH ALL THE MUSIC ON EARTH.

SONOS

Samsung  
**GALAXY Note II**  
Be creative

SAMSUNG



## ***Multi Window***

Do two things at once

[samsung.com](http://samsung.com)

Available at

**phones<sup>®</sup>**  
**4u**

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[Illustration: Nathaniel Daniels.com]

## Do we still need physical tech stores?



**YES** **Mark Wilson** believes that only by mixing shopping with entertainment can we save our right to fondle...



**NO**

**...but Tony Horgan** argues that the high street is already extinct and it's all going to be digital from here

**MW** Bricks-and-mortar stores are like dominos tumbling into a flaming bargain bin. We've seen Blockbuster, Comet, HMV and Jessops all plunge into administration while others such as Game have flashing red energy bars and desperately need a medikit. It's a disaster for them, but also for us. If we can't hold gadgets in our hands and try out user interfaces, our tech-buying lives will be irrevocably damaged. It's time stores took Apple's lead, and rebooted retail.

**TH** I'd like to believe that our favourite tech stores could be revived by following Apple's lead, but Apple has a unique business model that allows its shops to match online prices in a way that retailers of multiple brands

never could. Even Google has canned its plans for a high street presence. We like to try before we buy; the trouble is we're not buying from where we're trying, so clearly they're a luxury, not a requirement.

**MW** OK, maybe Apple is in a unique position. But its packed-out stores show that people want real shops, if they're done right. Tech stores need to be more than post-apocalyptic '90s timewarps. The digital revolution hit music too, but that hasn't stopped a booming live scene. What we need is more 'event' shopping. Take Japan's Akihabara district – it's a tech mecca because its stores have a strong identity and offer treats you can't get elsewhere. Super Potato is

basically a video game museum where it just so happens you can also buy games. I want that here.

**TH** Whizz-bang event shopping works in flagship stores, but take it beyond the metropolis and it ain't happening. When half of the gear in tech shops is also available in the supermarket next door, it's amazing that any of them are still around. The collapse of music sales drove that boom in the live music scene – it's the only way artists make money – but I can't see how an appearance from 1D at my local gadget megastore is going to pull in much business.

**MW** You underestimate their floppy hair. But surely the 'burbs deserve better than the 'supermarket or internet' shopping choice you

describe? We need stores reinvented for the 21st century. The number of independent shops in the UK is slowly rising. And if specialist tech stores can mix expert advice with speedy checkout tech like PayPal. Here, it'd breathe life back into our homogenous high streets. Once again we'd have the Saturday thrill of going into town and returning at lunchtime with a shiny new toy.

**TH** I'd love a chain of specialist music tech shops the size of a warehouse, with gear I could try and buy right there – your 'event shopping' idea would actually make sense with that. But with Google already trialling a same-day delivery service to rival the all-stocking Amazon, it looks like we'd better get out there and get buying while we can.

### Stuff.tv

Join the debate at [Stuff.tv/forums](#)

#### What you said...

"Physical stores need to be run better and have better relationships with their customers."

Manjit Dosanjh

"Before we consign physical stores to the dustbin of history, shouldn't we try to make sure that online stores like Amazon pay their fair share of taxes first?"

Ceri Thomas

"Stores need to evolve into 'experience zones', providing an environment

where the customer can get hands on with the technology, but also creating a creative space for lifestyle experiences."

Charlie Henderson

"Physical stores are not really necessary, but the social aspect is important."

Simon Price

# THE FUTURE OF HI-FI

State-of-the-art solutions for the digital generation



## UnitiLite Slimline All-in-one Player

Handling all of your digital audio needs in a slimline enclosure, the new UnitiLite delivers a world of music in breath-taking sound quality. CD playback, high-resolution UPnP™ audio streaming, internet radio and optional FM/DAB and playback of audio from USB and iOS devices are all part of its repertoire, while five digital S/PDIF inputs handle audio from sources such as CD/DVD players, laptops and satellite TV boxes.

When used in conjunction with the UnitiServe hard disk player/server and the SuperUniti, NaimUniti 2 or UnitiQute all-in-one players, the UnitiLite becomes part of the high-quality wireless multi-room offering, UnitiSystem, delivering world class sound to every corner of your home. n-Stream, Naim's free-to-download and easy-to-use control app for iOS devices, completes the system, putting your entire music collection at your fingertips, wherever you are.



★★★★★

Find out more about the UnitiLite and Naim's other digital products at [www.naimaudio.com/future-of-hi-fi](http://www.naimaudio.com/future-of-hi-fi)

**naim**  
world class sound...

# COMPETITIONS

## Win £1925 worth of prizes



## WIN! A NOKIA LUMIA 720 AND AMAZING KIT BUNDLE

We've got two of Nokia's colourful new Windows Phone 8 smartphones plus accessories up for grabs

**Imagine a world without colour.** Football would always be shirts versus skins. Eating Jelly Beans would become a Russian Roulette of Dodge The Cinnamon Flavour. And high-fashion designers would have to send models down the catwalk in ever more ridiculous outfits. Ahem.

But here at *Stuff*, what we'd really miss would be the eye-catching, hue-happy designs of Nokia's Lumia smartphones. The newest addition to the line-up is the Nokia Lumia 720. Powered by Windows Phone 8, it has a slim, vivid unibody design and also rocks wide-angle front

and back cams, an extra-long battery life, NFC, free Nokia Mix Radio and a vibrant 4.3in screen. We've got two red models to give away, with first prize also winning a Fatboy Charging Pillow, PowerUp speaker, Monster Purity Pro Headset and more, and the runner-up getting a PlayUp speaker, Monster Purity Pro headset and other goodies.

#### Terms & conditions

1Open to UK residents aged 18 or over. 2Entries close: 11.59pm on 10 May 2013. 3Prizes are as stated. 4Prizes are non-transferable. 5Only one entry per person. 6For full Haymarket terms and conditions see: [www.staff.tv/legal](http://www.staff.tv/legal). Promoter: Haymarket Media Group, Teddington, Middlesex, TW11 9BE.

#### How to enter

For your chance to win a Lumia 720 plus massive bundle of accessories, visit [www.staff.tv/win](http://www.staff.tv/win) and answer this:

#### Which OS does the Nokia Lumia 720 run?

A Windows Phone 8

B Windows 95

C When I'm cleaning Windows

For more info on the Nokia Lumia 720 range, visit [bit.ly/lumia\\_720](http://bit.ly/lumia_720) or [bit.ly/lumia\\_accessories](http://bit.ly/lumia_accessories)



# SMARTWATCHES THE TIME IS NOW

Apple didn't invent the smartphone. Nor was it first to concoct the concept of a tablet computer. What it did was take two existing gadget categories, redefine their core purpose and focus on fulfilling those roles as cleverly and elegantly as possible. The approach paid off, and then some. Similarly, while smartwatches have existed for decades, only now are they coming of age. So with Apple's effort strongly rumoured to land by the end of the year, we've gathered the cream of the current crop and spoken to the experts for inspiration as to how a truly revolutionary smartwatch would work, and what it would do. Educated guesswork, then, but all of it based around a kernel of certainty: it's not about telling the time...

**C**Sony's SmartWatch (£90, sonymobile.com) hooks up to your Android phone and uses a square OLED touchscreen to control tunes, tell you who's calling and display your Twitter feed. We reckon Apple's iWatch will follow a similar route, providing companionship for your iPhone.

Words Tom Wiggins  
Model pictures David Venni  
Art direction Ross Presly  
Stylist Charlotte Adsett  
Hair and makeup Michelle Marsh  
Model Annie at Milk Management  
Clothing Blue swimsuit, Asos.com



THE iWATCH WILL BE...

# YOUR PHONE'S BEST FRIEND

Inspired by **Cookoo**

Sci-fi sold us the concept of wearing videophones on our wrists. Not likely. Today's smartwatches are all about serving as a conduit to your phone



## CONNECTIVITY

### How the Cookoo works

The Cookoo uses low-power Bluetooth 4.0 to connect to your iPhone, which is where the brains of the operation are. The watch itself is little more than a receiver ready to pick up and display notifications sent out by the phone every time a call comes in, a reminder pops up or your battery level is getting low.

### What it means for the iWatch

Bluetooth 4.0 is the obvious choice for a smartwatch; it's so low-power the Cookoo has a replaceable, non-rechargeable battery. Chuck Sabin, director of product management and planning at trade association the Bluetooth SIG says: "For anything with an always-on nature, that is frequently monitoring data, you want a low-power capability for dealing with small spurts of information." Bluetooth 4.0 can stream at up to 25Mbps – that's ample bandwidth for the iWatch.

## NOTIFICATIONS

### How the Cookoo works

Aside from alerting you to phone-based activity with a beep and a rumble, the Cookoo's Command button is linked to your phone's GPS, meaning it can be used to check in on Facebook or drop a pin on a map at your current location. You can even tinker with the button's functionality via the app.

### What it means for the iWatch

David Fisher, of design studio FISH&CO, has had a hand in the development of wearable tech designs for Nokia in the past. He says: "It's about passive control and monitoring. It'll be more like a wrist tablet for navigation, social media and checking your email. You're not going to watch YouTube videos on your wrist, but it could be used for complementary content to whatever app is running on your phone – a bit like the second screen of a tablet and telly."

## REMOTE CONTROL

### How the Cookoo works

The Cookoo's Command button can also be used to fire the shutter on your phone's camera, which is especially handy if you like taking pictures of yourself playing with your watch. More functions can be added by Cookoo via an update to the app, with music control first on the company's to-do list.

### What it means for the iWatch

Any control of your phone is likely to rely on a conversation with Siri – and it wouldn't be the first watch to use voice control. "Martian already makes watches that have implemented hands-free calling and voice commands using a combination of Bluetooth 4.0 and 2.1, so even those kinds of capabilities are available through a watch," says Sabin. "Those functions are essentially streaming audio and the requirements for that are very different [to notifications]."

With its combination of analogue face and digital display, you could be forgiven for mistaking the Cookoo (US\$130, [cookoowatch.com](http://cookoowatch.com)) for a normal watch. But hook it up to your iPhone and its extra skills will start to reveal themselves as subtle on-face icons.



## MORE INSPIRATION...

### Pebble

£100 | [getpebble.com](http://getpebble.com)

While it hooks up to your phone to deliver notifications in the same way as the Cookoo, the Pebble will soon allow you to install apps directly onto the watch via an app store.

Clothing  
Neon yellow dress,  
Forever Unique





THE iWATCH WILL BE...

# A HEALTH & FITNESS GURU

Inspired by **Leikr**

If it's on your wrist all day it might as well pay attention to what you're doing. Any smartwatch worth your time should also be a personal trainer



## GPS & MAPPING

### How the Leikr works

The Leikr's built-in GPS uses OpenStreetMaps stored on the watch itself. The free, full-colour maps are kept up to date by users, with Leikr owners choosing which maps to load to the 8GB memory. Rather than for finding a nearby boozer they're for helping to keep you on track while running or cycling.

### What it means for the iWatch

If Apple's own smartwatch is to be an extension of your iPhone it's unlikely to have power-draining GPS built-in (the Leikr's battery only lasts six hours when tracking is active, compared to 24 hours with it turned off). It's more likely to use the phone's sat-nav and the Apple Maps app, with just the turn-by-turn directions delivered to the watch face via Bluetooth. Here's hoping there'll be a Google Maps app as well, or we could end up running a lot further than intended...



## SYNC & SHARING

### How the Leikr works

With its own Wi-Fi connection the Leikr connects wirelessly to your router in order to download regimes and routes from your online Leikr profile, which picks them based on your fitness level. It also works with activity tracking software Endomondo, allowing you to upload run data to the website when you get home.

### What it means for the iWatch

Let's look at the evidence. With Nike+ functionality built into the iPod Nano, plus apps available for the iPhone and iPod Touch, the motivational training tech seems a shoo-in for the iWatch. Combined with a connected iThing to play music while you run it'd make a formidable training partner, especially if you could trigger your PowerSong via the watch's touchscreen. Exercise data could then be uploaded via the phone, so it wouldn't put a dent in the watch's battery life.



## WORKOUTS & HEALTH

### How the Leikr works

A 2in Gorilla Glass-covered screen shows real-time feedback as you run, including distance, pace, calories burned and, if you have an ANT+ chest strap, your heart rate. Support for bicycle cadence sensors and power meters is also onboard but won't be enabled until after launch.

### What it means for the iWatch

In tandem with an updated Nike+ app, the iWatch could display a feed showing your run duration, distance and number of calories burned. Built-in biometric and motion sensors would also allow for Nike Fuel compatibility, periodically sending info from the watch to the app running on your phone, turning it into an all-in-one health-monitoring system. "If you look at the way alcohol and cigarettes are taxed, this kind of thing is going to become almost compulsory," says Fisher.



## MORE INSPIRATION...

### Larklife

**US\$150 | lark.com**

This Fitbit-style band lives on your wrist, quietly monitoring your daily activity and sleep, with feedback and tailored tips on exercises and diet delivered to you via an iOS app.

THE iWATCH WILL BE...

# DROP-DEAD DESIRABLE

## Inspired by **Citizen Proximity**

What will the iWatch look like? Perhaps it'll run on unicorn tears and affix itself via gravity. Perhaps. Only Jony Ive really knows, but we can take a punt



### LOOK & FEEL

#### How the Proximity works

At first glance Citizen's Proximity looks like any other watch. In fact, at second glance it looks like any other watch. Rather than a Cookoo-style screen, it uses a subdial to point towards parts of the face that correspond to different alerts. It's also water resistant to 100m.

#### How the iWatch might work

"They'll probably use magnets and do something clever with the strap," says Fisher. While Apple is rumoured to be working on a curved glass screen, Kristzian Flautner, vice president of R&D at ARM, thinks what's underneath is most important. "A good product would invest time into reducing how often you have the backlight on, or use reflective technology and not have one. There's colour E Ink, or dense, monochrome displays that are almost Retina resolution." We think Apple will go colour – apps look better that way.



### POWER & BATTERY

#### How the Proximity works

The Proximity is part of Citizen's Eco-Drive range, so despite all the inner wizardry it doesn't need charging. The face absorbs light and a solar cell converts it into energy to keep the watch ticking. It works using artificial light as well, so you won't be missing any meetings just because it's cloudy.

#### How the iWatch might work

"If you do enough engineering, it's probably feasible to make the battery powering an M-class ARM chip (such as the one used in the Pebble) last up to a month, but it's very case dependent. If you use GPS tracking and a lot of screen updates then maybe not," says Flautner. "Most people who wear a watch never have to wind it," adds Fisher, meaning battery life will be key for a smartwatch. "You don't want to charge them every night, you must break that cycle." One way or another, charging up your smartwatch seems likely.



### TIME

#### How the Proximity works

We probably don't need to explain how to tell the time, but here's a hint: it's to do with those rotating hands on the front. The Proximity uses Bluetooth to connect to your phone, synchronising the time and date, plus there's a 60-minute stopwatch should your phone's stopwatch seem a bit modern.

#### How the iWatch might work

You might wear it on your wrist but the iWatch should redefine the role of the humble timepiece. "It's not about telling the time," says Fisher. "It's like the iPhone – that's not really a phone, is it? They use phone because that's a paradigm people understand. This is a test for Apple to develop self-dependable, 'lower-calorie' technologies that rely upon very little to perform because they're piggybacking the 'engines' that are in the cloud." We agree, but if we don't get some nice-looking iWatchfaces, we'll eat our Rolexes.

**The Citizen Proximity (£400, [citizenwatch.com](http://citizenwatch.com))** hooks up to your phone via Bluetooth to deliver subtle call, email and calendar alerts to your wrist. It also warns you if you stray too far from your phone and can even make it ring if it goes missing.



### MORE INSPIRATION...

#### CST-01

from US\$110 | [centralstandardtiming.com](http://centralstandardtiming.com)

If Apple went futuristic with its design, it could look like this. A recent Kickstarter project, the CST-01 uses an e-ink screen and a Micro-Energy Cell that charges in 10 minutes.

Clothing  
Green dress,  
[Goddiva.co.uk](http://Goddiva.co.uk)

/SMARTWATCHES





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nixon.com

# SMARTWATCHES: A HISTORY

Watches have been able to do more than just tell the time for centuries but it wasn't until the '80s that they started getting clever. Here are the iWatch's most significant predecessors

■ 1984



**Seiko UC-2000**

It wasn't the first watch with a programmable memory but the UC-2000 was the first to work with an external keyboard dock. This allowed you to type notes into its memory, or use the watch as a display for BASIC programs. It even had a built-in printer.

■ 1985



**Epson RC-20**

Apple might have turned apps into an industry bigger than King Kong's toothbrush but way back in 1985 the startlingly prescient RC-20 was the first to allow you to install homemade apps onto its 2k memory and control them via its monochrome touchscreen.

■ 1994



**Timex Data Link 150**

Before Wi-Fi and Bluetooth, Timex found another way to wirelessly transfer data. The Data Link 150 had a sensor that read signals sent via a flashing CRT monitor. Old skool. The 150 in its name referred to how many phone numbers the watch could store.

■ 2007



**Citizen i:Virt W700**

Citizen's Proximity (p62) isn't its first Bluetooth watch. Back in 2007 the i:Virt W700 hooked up to your phone and vibrated to alert the wearer to incoming calls. Unfortunately, like curiously over-engineered lavatories, you could only find the W700 in Japan

■ 2004



**Suunto n3**

In collaboration with Microsoft, the n3 included SPOT (Smart Personal Object Technology), which used FM radio to receive news and weather updates transmitted by a subscription service called MSN Direct. Not the best idea Microsoft has ever had...

■ 2003



**Fossil Wrist PDA**

This smartwatch ran Palm OS, meaning it could do almost everything a Palm PDA could. The tiny touchscreen was its only limiting factor. If you think typing on an iPhone keyboard is hard, imagine using a stylus to tap out missives on a watch face.

■ 2009



**LG GD910**

LG's Dick Tracy-esque watchphone built an entire phone, underneath its 1.3in touchscreen. You could make calls by talking to your wrist, or fire up the camera to video chat like a real person from the future. Surprisingly good, but it never really took off.

■ 2010



**Apple iPod Nano**

The sixth-gen Nano's square shape and 1.5in touchscreen made it perfect for wrist mounting. With a customisable watch face and Nike+ smarts, it's the closest thing to an Apple smartwatch so far. All it needs is a Bluetooth connection for iPhone...

■ 2012



**Pebble**

Kickstarter's big success story of 2012 raised over \$10m from a target of \$100k. In its previous guise as Allerta, Pebble Technology in 2010 released the inPulse, a smartwatch for BlackBerry that was a sign of things to come. You can read our Pebble review on p85.

STUFF DESIGN LAB

# HOW WE'D MAKE AN iWATCH

You've seen the competition, so now it's time to wind things up and throw together a wishlist for Apple's chronometer of the future. This is what we're hoping to get from a Cupertino timepiece



## MICRO CHIPS

According to ARM, a tiny power-saving M-class chip such as the Pebble's Cortex-M3 is capable of running at 'hundreds of MHz', meaning it could power a hi-res screen – it just depends how you organise the software. In order to smoothly run the iWatch's rumoured cut-down iOS, it's likely that the device will require a little more grunt. But if the sixth-gen iPod Nano managed it...

## A VERY SIRI IDEA

Voice control via the connected iPhone's Siri would turn the iWatch into a personal oracle without compromising its design. There's plenty of screen space to retrieve answers such as 'what am I doing on Thursday?', 'how many calories have I burned?' or 'what's the land-speed velocity of an unladen swallow?' As for built-in FaceTime video calling... we'll pass. It ain't gonna happen.

## SHOW THE WAY

The opportunity to use a smartwatch for navigation purposes is surely a no-brainer. We'd like to see GPS directions delivered to the display and a bike mode that swaps visual indicators for vibrations – once for left, twice for right – so you can keep the iWatch on your wrist as you ride, rather than having to affix it to your handlebars. We'd also like Google Maps to work...

## DOUBLE-LOCK

Considering NFC has so far failed to take off, Apple's refusal to adopt it hasn't proved to be a major tragedy. But on a watch it would be genuinely useful for payments, data sharing (send a vCard with a tap, say), ticketing and more. The idea that you could keep your phone in your pocket to do anything on the go that doesn't require its bigger screen is a compelling one for us lazy lot.

## TAP ON THE WRIST

NFC or similar contactless tech would also be used for two-step security, providing the wearer with a unique identifier requiring both the watch and a password for important stuff such as online banking. In a world where passwords are no longer enough to keep the baddies out, this could prove invaluable. Although it probably won't be able to stop you from eBaying while drunk.

## AN APPLE A DAY...

Having a device that is constantly in touch with your skin opens up all kinds of health-monitoring possibilities. Alongside Nike+ and Fuel integration, our iWatch would measure your body's temperature and perspiration to gauge your calorific intake and expenditure. It would integrate with apps that tell you what to eat and it'd even play you Enya when you get stressed. Actually, scratch that last one.

**STUFF SAYS** The iWatch is Apple's chance to prove it can still innovate and amaze. It could even make the iPhone essential again. Expect great things.



## CHARGE ME

Neither kinetic nor solar power will yield the juice needed to keep it going for the five days Apple is said to want. A Lightning port would prevent water resistance, while a Nike Fuel-style USB bracelet would kill customisation. We'd opt for wireless charging: convenient, waterproof, and Apple could sell pricey straps.

## ALL SEEING i

A square display would provide the best combo of ergonomics and usable screen estate. Ideally, it'd be an IPS Retina Display, but as Flautner says, "If you go for a high resolution with that kind of tech, it'll cost you battery life." So, a reflective display that's readable with or without backlight, like the Leikr's.

## SIZE MATTERS

Apple's design credo suggests the iWatch will be made from aluminium and GT sapphire crystal (p33). Size is crucial: too big and it'll feel conspicuous; too small and you'll need pins for fingers. A usable 1.8in screen and Pebble-besting 200mAh battery would give a chunkily masculine case around 35mm square.

## TAG-TEAM

To save battery life and simplify installation, we think the iWatch will rely on your iPhone's OS to run cut-down apps and Bluetooth their interfaces to the smaller screen. The possibilities are endless: control Spotify; start and stop Strava fitness tracking; surreptitiously check the footy scores...

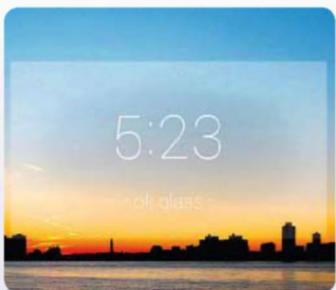
## KEEP IT APPLE

A button on either side (and an accelerometer inside) would allow you to wear the iWatch either way up, with one used to turn it on and off, and another to return to the home screen, iOS-style. A swipe across the face would take you from the time to your apps, while holding the 'home' button would activate Siri.

## THE COMPETITION

# 9 THINGS YOU NEED TO KNOW

Apple's smartwatch may still be couched in secrecy, but there's one piece of wearable tech we know a lot more about – Google's always-connected eyewear. It might seem like sci-fi, but it's fast becoming reality. Here are the facts...



## 1 IT HAS A SLICK NEW INTERFACE

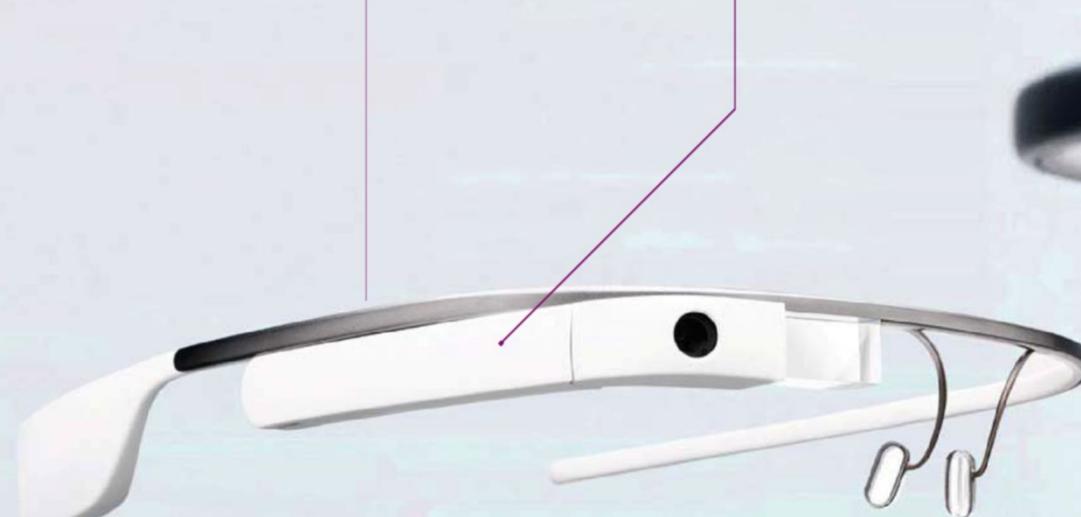
The first Project Glass video was very impressive, but on closer inspection it was a bit unrealistic. The latest demo shows a simpler interface, with text and basic graphics displayed in the corner of the wearer's vision, rather than taking up the whole view.

## 2 IT'S AN EXTENSION OF YOUR PHONE

Like most of the smartwatches you've been reading about here, Glass is a companion to your phone rather than a replacement for it. There is Wi-Fi and GPS but no SIM card slot inside, so you need to pair the specs with your phone in order to access data.

## 3 IT WILL LISTEN TO YOU

Glass is largely voice-controlled, but to activate it you must tap the side of the frame or lift your head. Once it's listening, say "OK Glass" followed by a command: Google something, get directions, take a picture or record video (defaulted to record Vine-style short clips).



# ABOUT GOOGLE GLASS



## 4 IT SEES WHAT YOU SEE

Glass's camera mimics your POV, so whatever you see, it sees. But you don't have to keep the view to yourself. As well as shooting videos and taking pictures to store locally, you can broadcast what you see via a Hangout. Time to give Google Plus another go...

## 5 IT SPEAKS MANY TONGUES

Google Translate has been having a bash at interpreting foreign languages on phones and web browsers for a while now and it's built right into Glass, with the translated word read out for you. Add in airport departure info and Glass looks like a real globetrotter.

## 6 IT \*ALMOST\* LOOKS COOL

A tinted lens attachment turns Glass from sci-fi prop into Oakley-esque frameless shades. The electronics also come off and will be compatible with third-party frames, with nouveau vintage brand Warby Parker named as potential partners.

## 7 IT'LL RUN THIRD-PARTY APPS

As well as email, Maps and video skills, Glass will be able to run apps, some of which were shown off at tech jamboree South By Southwest. A New York Times app, for example, drops headlines into your eyeline. Tap the frame and Glass will read you the story.

## 8 IT'S NOT QUITE FINISHED YET...

Glass is still in development but Google's already despatched semi-prototype 'Explorer edition' headsets to early adopters and developers for in-the-field beta- and hope-users-don't-immediately-get-mugged testing. Still, it should be on sale in 2013.

## 9 ...AND IT'LL BE PRETTY PRICEY

The Explorers were available in five colours (black, orange, grey, white and blue) at a rather eye-watering cost of US\$1500. That's the kind of price that'll put off all but the most hardened wannabe cyborgs, so if Glass is to take off, expect it to plummet by launch.



# THE FUTURE IS WEARABLE

Apple and Google aren't the only gadget gargantuans surfing the wearable tech wave – everyone's getting in on the gadget garment revolution. Bring on the home cinema balaclava



## MYO

**US\$150 |** [getmyo.com](http://getmyo.com)

While Leap Motion already utilises gesture recognition to control a computer, the Myo armband picks up on electrical signals sent by your muscles and turns them into onscreen movements. If you thought using Kinect for Lightsaber battles was good, wait until you use this to unleash Palpatine-style Force lightning on any Jedi out to foil your imperial ambitions.



## JAWBONE UP

**US\$130 |** [jawbone.com](http://jawbone.com)

This is Jawbone's second crack at producing a life-tracking wristband that records your sleep patterns to help optimise your night-time rest, monitors your movements and warns you when you've been sitting on your behind for too long (who, us?). If you fancy 40 winks (or torturing yourself), the Up's Power Nap alarm will wake you up before you enter deep sleep.



## O-SYNC SCREENEYE X

**€150 |** [o-sync.com](http://o-sync.com)

The ScreenEye X combines a head-up display that shows your training stats with the ever-fashionable golf visor, so O-Sync can't have any Glass-style worries about people not wanting to wear it. Well, so long as they're golfers. It does have the worst name in gadgetry since the Ubanana uCan underwater MP3 player, though.



## STICK-N-FIND BLUTRACKER

**US\$70 |** [sticknfind.com](http://sticknfind.com)

Why should humans have all the fun when it comes to wearable tech anyway? Stick-N-Find's GPS token can be attached to pretty much anything (your dog Stanley, for example), giving you the opportunity to keep track of little Stan via a Google Map accessed using the companion app. No more *Homeward Bound* movies, hooray!

## GLASSES OR WATCH WHICH WEARABLE TECH WOULD YOU RATHER DON?



### Smartwatch

**By Tom Wiggins**

The day I got my first mobile phone was the day I stopped wearing a watch; it had become redundant. But a watch that augments my phone with music controls and live football scores and makes it less of a mugging magnet by diverting GPS directions to somewhere more convenient? That gets my wrist itching (but some cream should sort that out). More importantly, it won't make me look like a hipster Robocop – just an off-duty Dick Tracy. And considering I've taken to wearing a bright yellow trenchcoat and matching fedora to work, that's not a problem at all.



### Google Glass

**By Mark Wilson**

Smartwatches might have seemed futuristic in the '40s, but times have changed. Is a glorified smartphone remote the best piece of wearable tech 2013 can manage? No, it's Google Glass and its ability to put the internet in your eyes. That doesn't mean 24-hour nerd goggles and a spot on everyone's social blacklist. No, the promise is internet-augmented vision, as and when you need it. Smart specs sit in your pocket like 21st-century sunglasses, ready when needed to overlay your vision with traffic info or act as a voice-activated camera. An iOS watch? Delightfully quaint, but the future is ocular.



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## SOUNDBARS





# Raising the bar

The new Sonos Playbar brings multiroom music magic to your TV setup – but is it the best way to boost your home-cinema sonics?

## **Yamaha YSP-3300** £1000 | [uk.yamaha.com](http://uk.yamaha.com)

### Sounding out

Yamaha has been making soundbars since before Sonos existed, and the pricey YSP-3300 is a typically premium bit of kit. It's the only one here to bounce audio off the walls for virtual surround sound, while its striking shape helps sculpt the soundwaves and means the bar neatly straddles your TV's pedestal. And talking of neat, you feed all of your sources into the bar via HDMI and it sends video (including 4K and 3D) to your TV via a single cable.

### Wonder bar?

The others here might create a wide sound or a big sound, but the Yamaha is the only one that creates surround sound. It properly fills the room, with individual effects flying in from the sides so effectively you'd swear you had a speaker there. Its effectiveness will depend to an extent on the shape of your room and a full 5.1 package will always do it even better, but the 3300 serves up a phenomenal sound without needing all those extra speakers.

### Stuff says ★★★★☆

Surround sound skills from a simple box of tricks – Yamaha's done it again.

## **Sonos Playbar** £600 | [sonos.com](http://sonos.com)

### Sounding out

A new device from Sonos is always an exciting thing, and the company's first stab at turbo-charging your TV's sound is typically unique. The Playbar has just one connection – an optical input – so all of your devices connect to your TV as standard, and then out to the Playbar. Of course this is also a Sonos player in its own right, so it'll link with the rest of your multiroom setup and play all of your digital tunes, Spotify, Rdio, Deezer, internet radio and a whole lot more.

### Wonder bar?

Sonos has gone for atmospheric sound rather than masses of impact, so the 3.0 speaker array fires slightly upwards. It's a wide, punchy and detailed sound, though, and it works well for movies and games. And no other soundbar sounds as musical as this, with lovely control and dynamics. If it's virtual surround you're after get the Yamaha, but to massively improve your TV's sound, form part of a multiroom setup and get a whole world of music into the bargain, the Playbar rules.

### Stuff says ★★★★☆

This isn't just a soundbar; this is a Sonos soundbar, and it's awesome.



## **Orbitsound M12** £400 | [orbitsound.com](http://orbitsound.com)

### Sounding out

Like the idea of the Sonos Playbar but not the £600 price-tag? Orbitsound might just have you covered. Like the Playbar, the M12 has an optical input to take sound from your TV, and adds a stereo RCA option to boot. And while it lacks Sonos' range of built-in streaming, Bluetooth enables you to stream Spotify and the like from your smartphone. It's particularly compact even for a soundbar, but uses sound processing tech to fill the room.

### Wonder bar?

It might be wee, but the M12 has an array of six speakers behind its metal grille and one at either end for so-called Spatial sound. In use, it works well, with effects spreading nicely around the room. There's far greater weight and balance than you'd get from your TV, too, and it sounds good with music, even if it's occasionally a little fizzy in the treble. The Playbar pips it for quality, though, so without a further price cut it just misses out on that fifth star.

### Stuff says ★★★★☆

A compact and effective route to better TV sound, with added Bluetooth.



Why you need to be into...

## Cocktails

**Amit Sood, Head of Training at mixology school Shaker UK, says there's nothing to quench a thirst for geeky detail like mixing up a perfect Manhattan...**

**Good news: gastronomy has never been geekier. Thanks to Heston and his laboratory chums, these days the average Monday teatime consists of sous-vide sirloin with a side of nitrogen-blasted ice cream.** But it's not just food that's using gadgets to get us to tasty new worlds. The science

behind whipping up the perfect cocktail, known as molecular mixology, is just as progressive, scientific and fun. After all, what's the point of a summer soirée without a perfectly balanced Garrick Club Punch (*below right*)?

Perhaps it's just the memory of Tom Cruise 'flairtending' in *Cocktail*, but professional bartenders have never been taken as seriously as chefs. It's odd, because the similarities are many. To level up from 'bartender' to 'mixologist' takes time, a seriously developed palate, and an understanding of the unique flavour of every ingredient. It's a lifelong passion, and the satisfaction of putting your signature twist on classics such as the Bloody Mary is an unparalleled reward.

Though mixology's first golden era started in 1862 with Jerry Thomas' seminal *The Bartender's Guide*, the last few decades have been seen by our industry as a bit of a dark age. Shortcuts such as the monstrous, pre-bottled 'sweet and sour mix' have stifled creativity. But recently a brighter, more ambitious age has dawned. New tech has

made it easier than ever to re-distil alcohol with a range of delicate flavours. And mixologists are trying other tricks – barrel-ageing cocktails to mellow them like wines and spirits, exploring homemade ingredients, and using innovative garnishes such as edible flowers.

You needn't go to these extremes to satisfy your mates' tastebuds, but paying attention to the

**//The last few decades were dark but a bright, ambitious cocktail age has now dawned"**

small details can make a difference. Take a cocktail course to hone your tastebuds, or download an app such as Speakeasy Cocktails (£2.99, iOS) to get a grounding in the classics. Serve a daiquiri straight up' with some good rum, quality sugar and fresh lime. After all, with homemade drinks you don't have to take lazy bar shortcuts – and once you've got a taste for it, you can throw a little tech into the mix.

**START MIXING**

**Bar10der**  
£30 | [firebox.com](http://firebox.com)

This 10-in-1 Swiss cocktail knife is just the job for whipping up a homemade light-duty drink. Its tools also handily introduce you to drink-making lingo; there's a 'jigger' for getting a perfect one- or half-ounce measure, a 'muddler' for crushing herbs and spices and a strainer for separating ice from liquid, alongside the more traditional knives and corkscrew. In what is possibly an ingenious pun on its name, there are also ten starter cocktail recipes in the instructions, including the alcohol-free and rather delicious berry lemonade.

**SHAKE IT UP**

**Super Aladin Smoker**  
£155 | [souschef.co.uk](http://souschef.co.uk)

Though some spirits – scotch, for instance – have a natural smokiness, a smoking gun can infuse most liquids with a hint of campfire depth. The Super Aladin is a cut above its rivals thanks to its two chambers; one for your sawdust, another for fresh herbs or spices. It also ensures the smoke is cool by the time it reaches the liquid, to avoid heat-based alteration of flavours. Just choose your sawdust (oak for an intense wood smoke, beech for milder aromas), wet it with a few drops of water, and rustle up a smoky Old Fashioned. Beautiful.

MOLECULAR  
MAESTRO**Buchi Rotavapor R-210**

£poa | buchi.co.uk

The problem with distilling spirits in the traditional way is that the heat tends to cook your flavouring ingredients and destroy their delicate aromas. Not so with this game-changer, lovingly known as the 'RotaVap'. By using vacuums to lower the boiling points of liquids, it allows you to distil them at room temperature, concentrating flavour without losing subtlety. Say hello to chocolate vodka, peanut butter Scotch and a heap of fawning from your sloshed dinner party guests.

**JARGON  
BUSTER****Mixologist**

The bar equivalent of a chef. They explore all kinds of flavours, textures and combinations in drink-making rather than following existing boozing trends. A frequently misused term.

**Maceration**

A technique used to infuse flavours, typically into spirits. Achieved by soaking something in liquid (or 'steeping'), and is often aided by heat.

**Botanicals**

Plant-based items that are infused into alcoholic spirits. Juniper and coriander are the primary botanicals in gin.

**Straight up**

Refers to a drink that is shaken or stirred with ice, then strained and served in a glass without ice. Often shortened to just 'up'.

**HOW TO... MAKE THE PERFECT GARRICK CLUB PUNCH****Ingredients**

- 1-2 lemons
- 2oz. maraschino liqueur, e.g. Luxardo
- 1oz. superfine sugar
- 10oz. Old Tom gin or jenever [London dry gin is acceptable]
- 13oz. chilled water or ice
- 20oz. chilled soda water

**1** Peel the lemon using a vegetable peeler or paring knife, being careful to remove only the yellow peel and not the bitter white pith. Place the peel in your bowl or pitcher.

**2** Juice the peeled lemon, measure out 3oz. juice (juicing an additional lemon if necessary) and set aside. Add maraschino and sugar to the bowl with lemon peel.

**3** Muddle the sugar until well blended with the Maraschino. Add jenever or Old Tom, lemon juice, and water / ice. Stir until combined. Top up with the chilled soda water and serve.

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*happy Finnish*

FINLUX

## The Finlux 32F8030-T 32-inch Smart LED TV (That's what we call a happy Finnish)



Finlux 32F8030-T  
February 2013



Revered by the experts, the Finlux 32F8030-T is a multi-award winning TV, proving that Finlux offers a greater 'bang for their buck' than any of its rivals. It received a 5-Star review from What Hi-Fi Magazine as Best TV under £300, plus a 'Best Buy' & 'Recommended' awards from the Sunday Times and Trusted Reviews, firmly establishing it as one of the best value TVs in the market today.

So, if you're after a top-of-the range new TV to watch catch-up services and enjoy Freeview HD sporting action and drama series, take a closer look at [Finluxdirect.com](#) and get your hands on one of the hottest TVs around, for only £299.99.



Access to BBC iPlayer, YouTube & Social Media Apps · Built-in Freeview HD  
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Only available online. Visit **[Finluxdirect.com](#)**

# play it cloud

Spotify was the first to bring music streaming to the masses, but with the competition hotting up, can it retain its throne as king of the cloud?



iPh

An

## BLOOM.FM

£free–£10/month | [bloom.fm](http://bloom.fm)

### Bring the sound

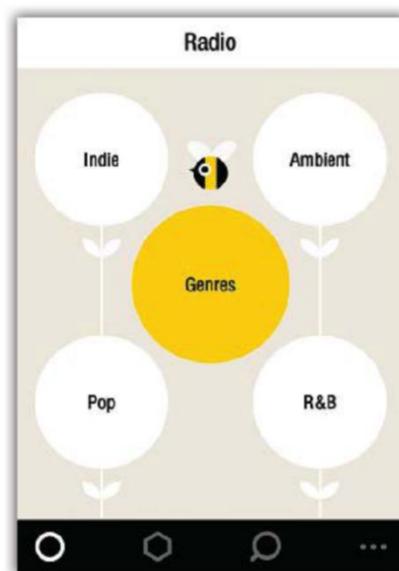
It feels as though a new music streaming service turns up almost every week these days, but Bloom.fm warrants special attention. Why? Well for starters, because it makes every alternative out there look as though it's not trying hard enough. It's beautifully designed, from the cute, animated bumblebee that acts as your music-gathering assistant, to the bright yellow, minimalist design and trendy fonts. You get genre-based radio playback for nothing, and can add the ability to 'borrow' tracks and store them locally for £1 (up to 20 tracks) or £5 (up to 200) per month. A tenner, meanwhile, gives you infinite streaming and borrowing.

### Streaming with pleasure?

Bloom.fm is still in its infancy, so only Android and iOS are supported right now. Once you've worked out what each of the symbols do (the Bloom.fm team clearly hates words that aren't band or song names), which takes all of two minutes, the app is enjoyably simple to use. All of the graphics are lovely, gaps in the 16-million track library are rare, discovering new music is simple, and having a bumblebee fly across the screen when you borrow tracks never gets old. Only relatively low bit-rates, which aren't disastrous but are audible, hold Bloom.fm back from being awarded a full five stars.

### Stuff says ★★★★☆

Bloom.fm adds a slug of both style and substance to music streaming.



## MUSIC STREAMING SERVICES



## XBOX MUSIC

£free–£9/month | [xbox.com/music](http://xbox.com/music)

### Bring the sound

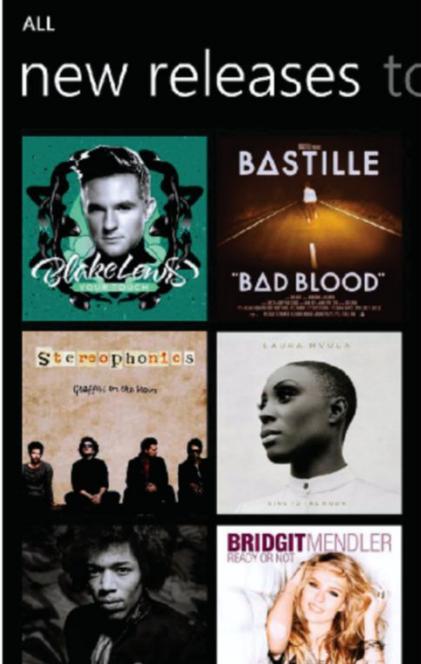
As we've been hearing for years, Xbox is about more than playing games, which is why Microsoft has used the Xbox name for its cross-platform music streaming service. We say 'cross-platform', but right now it's limited to Windows 8 PCs, Windows Phone 8 handsets and the Xbox 360. Apparently iOS and Android apps are on the way, but we'll believe that when we see them. Xbox music is actually pre-installed on those Microsoft devices, giving you access to a limited amount of free streaming out of the box. Going unlimited and on-demand costs £9 a month.

### Streaming with pleasure?

This is a lovely looking app, especially on Microsoft's own Windows Phone 8, but it throws together music you own and music available to stream in a way that's more confusing than clever. You'll also regularly stumble upon albums with individual tracks that are only available to buy, even if you've already forked out for the £9 Music Pass, which is a little galling. Sound quality is very good, though, and syncing tracks for offline listening is dead easy, even if you still can't enjoy them in the background on Xbox while playing a game.

### Stuff says ★★★★☆

If you're on a PC this is worth a try. If you're using anything else, there are better options.



## Pure Connect

## PURE CONNECT

£free–£5/month | [connect.pure.com/uk](http://connect.pure.com/uk)

### Bring the sound

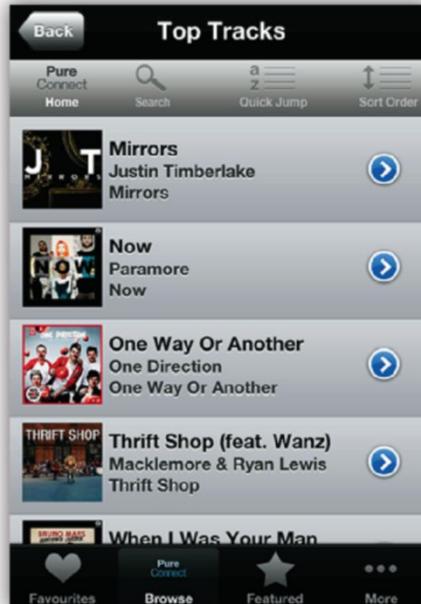
Barely a kitchen in the land is without one of Pure's DAB or internet radios, but the company also has docks, PVRs and now a music streaming service to its name. There's still a lean towards radio here – on-demand and live radio is a big part of both the web and smartphone apps, and there's a feature called Pure Tag that lets you click on tracks that are playing on a Pure internet radio for purchase later through the Pure Music sub-section of Pure Connect. However this is also a full, on-demand music streaming service that costs a very reasonable £5 a month.

### Streaming with pleasure?

It flirts with greatness, but Pure Connect isn't quite there yet. Like Xbox Music it combines streaming and downloading with confusing results, and while the streaming catalogue is big we found more gaps than in any of the others here. Frustratingly, there's no offline mode, so once your web connection is gone, so is any music you haven't paid to download. Still, it does sound pretty good, especially considering the relatively low 128kbps streaming bit-rate, and the integration with the company's web radios is very neat.

### Stuff says ★★★★☆

Handy for Pure Flow radio owners, but it doesn't do enough to attract the outsider.



## SPOTIFY



£free–£10/month | [spotify.com](http://spotify.com)

### Bring the sound

Never heard of Spotify? One, where the heck have you been? And two, you're in for a real treat. Spotify's the best thing to happen to music since Westlife called it a day. It pioneered the ad-supported free streaming model, it's got the most complete and up-to-date music library of any streaming service out there, and it's available on more devices than any other, including iOS, Android, Windows Phone 8, Sonos, Boxee, Squeezebox, Roku and some Onkyo and Denon hi-fi and AV kit. In short, Spotify is available everywhere and it's got almost everything you could want.

### Streaming with pleasure?

Listening to Spotify on anything but your computer will cost £10/month, but it's entirely worth it as that also strips out the adverts, opens up the High and Extreme quality settings and allows you to sync playlists to your phone for offline listening. It's a no-frills experience compared to Bloom, but sound quality is great (even though Extreme is still only 320kbps), sharing tracks is a doddle, and it's got a range of smart built-in apps such as Songkick, which tells you when bands you listen to are playing at venues nearby.

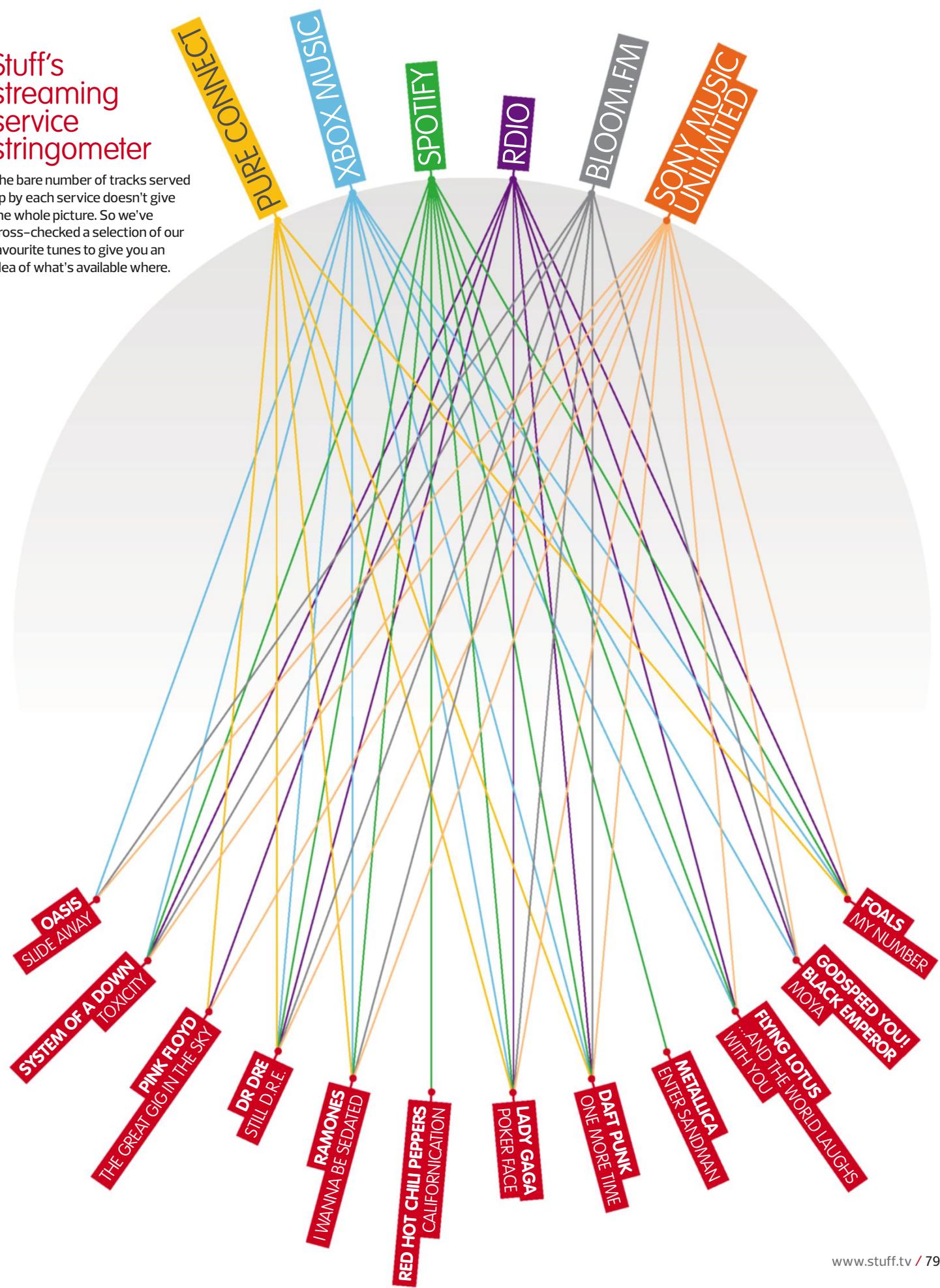
### Stuff says ★★★★★

A fancy skin would be nice, but Spotify is already close to streaming perfection.



## Stuff's streaming service stringometer

The bare number of tracks served up by each service doesn't give the whole picture. So we've cross-checked a selection of our favourite tunes to give you an idea of what's available where.



# MUSIC STREAMING SERVICES

iPh iPa An Mac PC Wp7 BB

## RDIO

£5–£10/month | [rdio.com](http://rdio.com)

### Bring the sound

If you were going to start a new music streaming service it would make sense to use the best out there as a benchmark, right? That's presumably why Rdio has more than a little in common with the mighty Spotify. There's the pricing structure (£5 per month for PC streaming, £10 per month to add extra devices), comprehensive social media integration, support for Sonos and Roku on top of the usual smartphones, and full offline syncing of tracks. Taking a shot at the king is a risky business, but it looks as though Rdio might just have the chutzpah to pull it off.

### Streaming with pleasure?

Rdio looks good – better than Spotify, in fact – on both PC and smartphone, with its clean, uncluttered layout making navigation a breeze. Heavy Rotation pulls up the music that your friends have been listening to the most, although there aren't many other clever ways to find new music. We found a couple more gaps in the Rdio catalogue, too, and the delivery is a smidge less punchy than Spotify, but this is still a very classy experience. With some useful apps and availability on more devices we could see ourselves switching our allegiance.

### Stuff says ★★★★☆

As close to a Spotify-beater as we've yet encountered, Rdio is well worth a spin.

### Heavy Rotation

Allen Stone (Deli...  
Allen Stone  
14 songs

General Dome  
Buke & Gase  
13 songs

BIRTHDAYS (Deluxe)  
Keaton Henson

THE MESSENDER  
Johnny Marr

Teach Me  
Keaton Henson



iPh An Mac PC

# SONY MUSIC UNLIMITED

£5–£10/month |  
[sonyentertainmentnetwork.com](http://sonyentertainmentnetwork.com)

### Bring the sound

After a slightly lacklustre start, Music Unlimited is gathering speed. There's no completely free option, but 30-day and 60-day trials are available, after which it will cost £5 per month for access through PS3 and computer, or £10 per month if you want to add it to Android, iOS, Vita and seemingly every internet-connected Sony device out there. With a massive on-demand catalogue and easy music discovery, Sony sure is ticking all the boxes.

### Streaming with pleasure?

Sony doesn't see all devices as equal: High Quality mode (320kbps) is only available on PS3, PC and Android, while Offline mode only works on Android, Walkman or Vita. Want to listen via an iPhone on a plane? Tough. And you can forget streaming a custom playlist while playing your PS3 too – the app won't run in the background. You can listen while playing on Vita, but it's more of a fiddly workaround than a design feature. Even with those flaws Music Unlimited is well worth a go, especially if you're the owner of multiple Sony devices.

### Stuff says ★★★★☆

Clearly still a work in progress, but the legion of Sony fans will find lots to like.



## ALSO CONSIDER

### Nokia Music

£free–£4/month | [music.nokia.com](http://music.nokia.com)

Like the sound of Xbox Music but think it's just too widely available? Try Nokia Music, which is only available on Windows Phone 8 handsets. It's actually quite a nice app, with free 'mix' radio and a Nokia Music+ subscription option for £4 per month, but the music selection is too limited in scope and you probably don't have a Windows phone.



### Napster

£5–£10/month | [napster.co.uk](http://napster.co.uk)

Remember Napster? Well it's still going, you know, and quite well too. There are now iOS, Android and web apps for it, and it's also on Sonos and a number of other home music streamers. It may not be as exciting as some of the newbies and it doesn't sound as good as Spotify, but Napster shouldn't be ruled out just yet.



### Deezer

£free–£10/month | [deezer.com](http://deezer.com)

Ad-supported free version, all-you-can eat desktop streaming for a fiver and mobile app support for £10 a month? Yes, like Rdio, Deezer has more than a little in common with Spotify. With more than 20 million tracks and the biggest selection of apps, it's also one of Spotify's biggest rivals, and well worth checking out.



# Sound of Fashionology®

## ReF™ Headphone Series



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-  Titanium Diaphragm



2013

2012 2011 2010 2009 2008 2007

2013 2012 2011 2010 2009 2008 2007

2013 2012 2011 2010 2009 2008 2007



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Innovative Lifestyle  
Unquestionable Value•



Through the ages...

# ZOMBIE GAMES

You're on an island infested by shambling, brain-dead monsters. Yes, you're on a reality TV show. Or you're playing *Dead Island: Riptide*

Although zombies have been a film and comic-book staple since the early '70s, it's only in the past 15 years that they've really infected the gaming world. Sure, there were zombie games in the '80s and early '90s, but the graphical limitations of

early consoles prevented their spread. After all, the terror inspired by a lurching, brain-hungry member of the undead was reduced somewhat if said zombie looked more like a lego man with a few red blocks for a face. That's no longer

the case, and brain-munchers are now big business. So, with *Dead Island: Riptide* due to pitch the hordes into an open-world environment next month, join us as we take a look back at the evolution of the zombie game. Braaaaains!



1984

## Zombie Zombie

ZX Spectrum

Springing from the mind of Brit legend Sandy White, the first decent zombie game was set in an isometric 3D world straight out of his hugely influential *Ant Attack*. Rather unfairly, your character had no weapon with which to kill the undead – represented here by red splodges – instead having to lure them to their death off high buildings. Well, isometric blocks.



1992

## Alone in the Dark

PC

This survival-horror classic solidified the genre and introduced the zombie as a rare but terrifying force: the shambling undead were creatures to be avoided, rather than killed, as you made your way around the flesh-creeping Derceto Mansion. Which was probably just as well, as the blocky green zombies had about ten polygons between them.

1996

## Resident Evil

PlayStation, Sega Saturn, PC

One of the most influential games ever, the first *Resident Evil* codified the laws of the third-person splatter-'em-up, taking the *Alone In The Dark* template and adding more gore, harder puzzles, a bigger gameworld, and set pieces so scary you could give them horns and call them Satan. It spawned



1997

## Carmageddon

PC, PS, N64

The ultra-violent squoosh-the-pedestrians racer didn't impress the censors, so *Carmageddon*'s UK release swapped your regular everyday commuter for green-blooded zombies. Which made it even better. Great work, censors! Sadly, it was re-released with the human sprites reinstated, a trend that's been continued in the Android and iOS ports. Shame.

1997

## House of the Dead

Arcade

*House of the Dead*'s seminal on-rails light gunning left us frantic and penniless while 'Shoot outside the screen to reload' became a mantra for obsessive arcade gamers the world over. Perhaps better still was 1999's *Typing of the Dead*, a mod of *HoTD2* which rewarded gamers' QWERTY skills, instead of their trigger fingers.



2005

**Stubbs the Zombie in Rebel Without a Pulse**

PC, Xbox, Mac

Sometimes, it's good to play as the baddie – in this case Stubbs, the behatted undead with a thirst for brains and his lady love. You roam around a 1950s 'future city', flinging your exploding entrails at civilians and sending your ever-growing zombie army into harm's way. Stylish, original and almost always hilarious – right down to the *Thriller*-style dance-off boss fight, set to a grubby rock cover of *Mister Sandman*.



2012

**DayZ**

PC

A free mod for soldier sim *Arma II*, this multiplayer open-world title may look like a standard shooter but it's a tense, desperate fight where death is permanent and you're always in need of food, water and medicine – zombies come later. They come, that is, if you're not killed first by a fellow gamer in need of supplies. A full version is due out later this year.



2009

**Plants vs. Zombies**

PC, PS, Xbox, DS, mobile

PopCap's floral twist on the tower defense game set the legions of the undead against some resilient and surprisingly destructive plantlife. Cute, slick, but addictively challenging, *Plants vs. Zombies'* tactical gameplay meant that even the least casual of gamers found their brains tested. All the more reason to hang on to them...

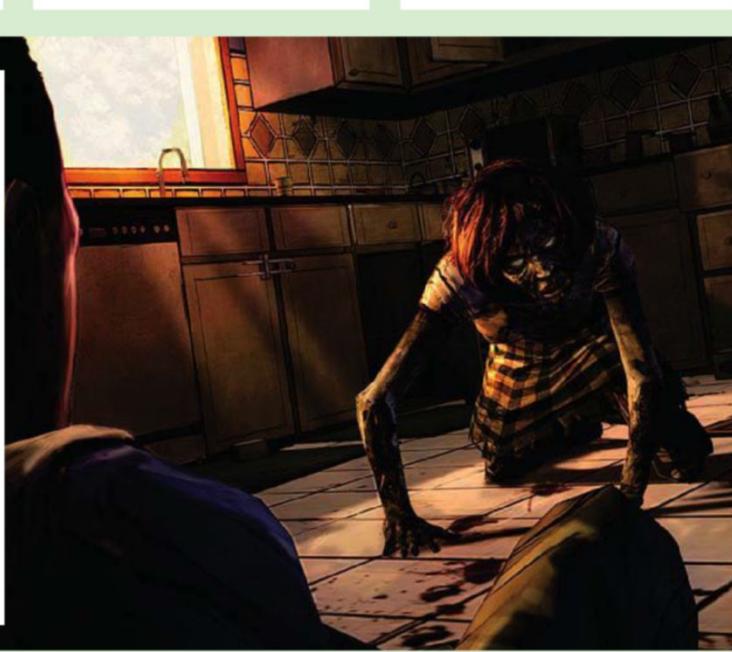


2008

**Left 4 Dead**

PC, Mac, Xbox 360

The game which breathed undead life into co-op gameplay, *L4D* threw you and three mates into a sea of zombies with only each other to rely on. And the recently risen weren't just your regular shufflers: no, you also got the exploding Boomers, the multi-tongued Smokers – and best not think about the eerie, sobbing, very deadly Witch...

**THE MISSING LINKS**

And five dead good games which just missed the cut

1986

**Zombi**

Amstrad

Slavishly beholden to George A Romero's classic undead-in-a-shopping-mall flick *Dawn Of The Dead*, *Zombi* was a clever icon-based adventure that played rather better than it looked. It was also Ubisoft's first game, fact fans.



1992

**Wolfenstein 3D**

DOS

Not a zombie game as such, but it's got zombies in it. Plus, they're Nazi zombies, which makes them even more evil than your average brain-sucking corpse. A huge influence on the fledgling FPS genre, its creators next made *Doom*.



2004

**Half-Life 2**

PC, PS2, Xbox

Again, not technically a zombie game – but try telling yourself that as you stumble through the dark, creepy streets of Ravenholm. The best level in the best game ever, it's populated by creatures who moan, shamble and try to kill you. So let's call them zombies.



2006

**Dead Rising**

PC

Much like rising damp, there's not much to do with the dead rising other than gut 'em and start over. In this sandbox zombiethon you had 72 hours in an infested shopping mall and could turn lawn mowers, paint tins or shower heads into weapons.



2012

**Zombies, Run!**

iOS, Android, WP7/8

If a zombie game does its job you'll spend your time sprinting from ravenous creatures with more interest in your brains than the average university. *Zombies, Run!* is a fitness app that does the same in the real world. The sound of a zombie at your heels does wonders for your speed.



# Truly wireless

The SMA is a precisely tuned speaker system with unrivalled wireless connectivity. Now you can literally take your music anywhere.

[www.pioneer.co.uk/sma](http://www.pioneer.co.uk/sma)

*A. Jones*

Tuned by Andrew Jones, Chief Speaker Engineer, Pioneer Electronics.



**Pioneer**

[www.pioneer.co.uk](http://www.pioneer.co.uk)



## TESTED

# Pebble

£100 | [getpebble.com](http://getpebble.com)**You don't have to wait for Apple's iWatch to smarten up your wrist.**

Pebble is kickstarting the market with this customisable, connected timepiece that pairs with your phone.



Really, the Pebble's smart features are what we're all excited about here. Pair it with your iOS or Android phone via Bluetooth and **text, email and social media notifications will pop up on the screen with a buzz**. It's incredibly cool and also extremely useful in certain social situations.

You can also use the Pebble to **control your phone's music player, complete with track names**. It's a bit flaky on Android and won't work at all if you're streaming your tunes to another Bluetooth device, but when it does behave you'll feel like some kind of futuristic DJ god.

The Pebble charges in around three hours via a magnetic USB cable that may have been influenced by a small Cupertino firm. **Battery life is claimed at a week but ours died after less than three days**. All that Bluethoothing will also drain your phone's battery by an hour or so.

## NOW DOWNLOAD THESE...

**More watch faces**

The Pebble comes with three faces pre-loaded, with two more available from the Pebble app. One has big numbers, the other dots that count off every five minutes in a fairly useless fashion. Expect more soon.

**Freecaddie**

One of the first third-party apps for the Pebble is geared to the golfing crowd. It hooks up to your phone's GPS and shows the distance to greens and bunkers on some 2500 courses worldwide.

**RunKeeper**

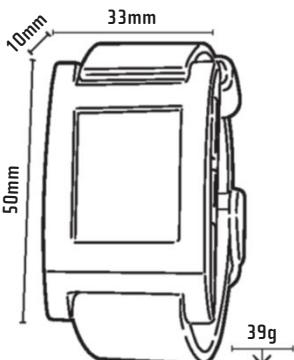
This titan in the world of iOS and Android fitness apps is due to land on the Pebble soon, again using your phone's GPS. Hitting a button will display glanceable stats for your workout time, speed and distance.

**Text back**

Seeing a message on your wrist is cool. Being able to fire back a canned response would be sub-zero. The Pebble team says it's working on this, plus better Facebook and Twitter notifications, for a future update.

**[VS] COOKOO**£90 | [cookoowatch.com](http://cookoowatch.com)

This rival Kickstarter project emphasises the watch over the smart: it chirps when tweets, messages and mails arrive but doesn't show details. Buttons can be set to check in to social media, tag locations or trigger your phone's camera, though.

**TECH SPECS: PEBBLE**

**Display** 1.26in, 144x168 pixels, e-paper with motion-sensitive backlight

**Processor** ARM Cortex-M3 chip  
**Connectivity** Bluetooth 2.1+ EDR and 4.0

**Control** 4 buttons

**Water resistance** 50 metres, salt and fresh water

**Built-in faces** 3 (more available)

**Other** 3-axis accelerometer, vibration alert

**STUFF SAYS** ★★★★☆

It's unlikely to be the last smart watch you buy, but it should definitely be the first. A timely debut

# WORK HARD THEN FLIP OUT

Dell's new XPS12 Ultrabook™ blends PC power with the tablet touch



hat laptop-tablet-or-both conundrum is one of life's modern dilemmas. You don't want to go on a work trip laden with computing hardware but you don't want to be caught short with an awkward OS that can't keep up with your professional needs. Dell's XPS12 unravels this problem. It delivers the usability of a laptop using a keyboard and all that computing power – but flip the screen and enjoy the relaxed virtues of a tablet.

The XPS12 is a seriously convenient piece of hardware. It gets going from stand-by in seconds and there's no waiting around for software thanks to Intel® Smart Connect Technology that automatically updates your email, social networks and apps, even in sleep mode.

You can enjoy a stand-out viewing experience with the 12.5-inch, full HD (1080p) display and it has a 160-degree viewing angle meaning it sustains its crisp and clear image whatever the

angle. With third generation Intel® Core™ processors, this convertible Ultrabook™ delivers the speed and performance you expect from the XPS™ family. Its stylish, fresh design makes it play- and work-ready; whether you're at home, in the office or on the move, you'll have high-level, easy computing power.

The stand-out feature is that unique, and pretty cool, flip screen: it's been tested to 20,000 cycles, which means it's robustly built and ready for big usage. Sporting Windows 8's colourful live tiles as its OS there is no need to decide between the laptop and tablet: the XPS12 delivers both.



To bring this product to life, point your device's camera at the page with the free blippar app downloaded and open on your smartphone or tablet

#### FLEXIBLE DESIGN

Transform your XPS12 Ultrabook™ to a tablet with a fluid flip-and-fold motion thanks to its hinge design. Have the best of productivity and entertainment at your fingertips

#### MEET WINDOWS 8

It works with the new Windows 8 Pro OS, delivering the latest apps for work and play in an enhanced touch-based experience – without sacrificing PC functionality

#### ALWAYS ON TIME

No more waiting thanks to Intel® Smart Connect Technology that automatically updates your email, work contacts, social networks and favourite apps, even in sleep

#### PREMIUM BUILD

Constructed from durable materials – machined aluminium, bonded Corning® Gorilla® Glass and carbon fibre – for a totally premium experience

#### SUPERIOR VISIBILITY

A 160-degree viewing angle means your 12.5-inch full HD (1080p) 400-nit display looks clear and crisp from almost any seat





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**KEY SPECIFICATIONS**

**Processor** Intel® Core™ i5-3337U or Intel® Core™ i7-3537U

**Screen** 12.5-inch full HD (1080p) True Life WLED Touch Screen Display

**Ram** 4GB upgradable to 8GB

**Storage** Up to 256GB SSD

**Connectivity** Bluetooth, WiFi, 2 x USB 3.0 ports, mini-display port

**Dimensions** 8.20mm x 317mm x 214mm, 1.54kg



## Five essentials for success...

Need an instant guide to help bring balance back into your life while maintaining that upward trajectory? Look no further...

### **Working hard, playing harder**

**1** If you do something interesting, you re-energise yourself – so says recent research at California State University. Find time in your working day to do something ‘interesting’ and you’ll return reinvigorated and ready for the next challenge.

### **Always ready to move**

**2** Working wherever and whenever you are is essential for keeping on top of unfolding situations. Richard Branson explains: “If you provide the right technology, maintain regular communication and get the right balance between remote and office working, people will work responsibly, quickly and with high quality.”

### **Clear thinking, working backwards**

**3** Work out what you want then establish the steps required to get there. This means being quick to realise when something isn’t working. Sir Dave Brailsford, the coach behind Great Britain’s cycling successes, first had the big goal (winning the Tour de France), then he set about achieving this, cutting and changing processes but never losing sight of the target.

### **Give yourself a break**

**4** Studies in the US have shown that cutting yourself some slack makes you happier, less anxious and more successful. It makes it easier to learn from your mistakes. So don’t beat yourself up – everyone makes errors and no one is perfect.

### **The art of editing or cutting corners**

**5** Work out a more efficient way of thinking. President Obama once said: “I need to remove the day-to-day problems... I wear only grey or blue suits. I don’t want to make decisions about what I’m eating or wearing. I have too many other decisions to make. I need to focus my decision-making energy.”

## ...Five XPS12 tips to live by

Every successful person has their invaluable sidekick – and that’s where the Dell XPS12 comes in

### **Flip modes, flip minds**

**1** The XPS12 allows you to switch from work to play easily – switch off that spreadsheet and read a book or watch a film with an HD screen that’s very easy on the eye.

### **Stay on when off**

**2** The XPS12 allows flexibility and connectivity wherever you are – take care of urgent business with the same processing power and convenient hardware that’s keeping you entertained during your weekend away.

### **Keep complicated simple**

**3** The XPS12 is perfect for making sense of complex strategies so you never lose sight of that big picture – it’s a flexible, sharply designed PC with all Windows 8’s operating convenience.

### **Share and survive**

**4** The XPS12 is a work-tool and a home-entertainment device that helps you to escape the moment, mentally switch off then return reinvigorated.

### **Make life efficient**

**5** The XPS12 is an elegant and understated tool that will help you edit your life processes allowing you to concentrate on what’s important without compromising on the quality of your work.

## READER OFFER SAVE £100 ON THE XPS12\*

Blipp this page or go to  
[dell.co.uk/xps12](http://dell.co.uk/xps12)  
 and enter code  
**NPT157R9F?39W7**



"One of Dell's best laptops ever. The speeds at which it boots is amazing, the construction is durable and the keyboard is rock solid. The flip screen is snug yet easy to flip" [Online review](#)



### BUY NOW ONLINE

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[dell.co.uk/xps12](http://dell.co.uk/xps12)

"Vibrant screen, strong exterior, seamless transition between laptop and tablet, tablet with the processor and RAM of a laptop, all day battery life, very light" [Online review](#)

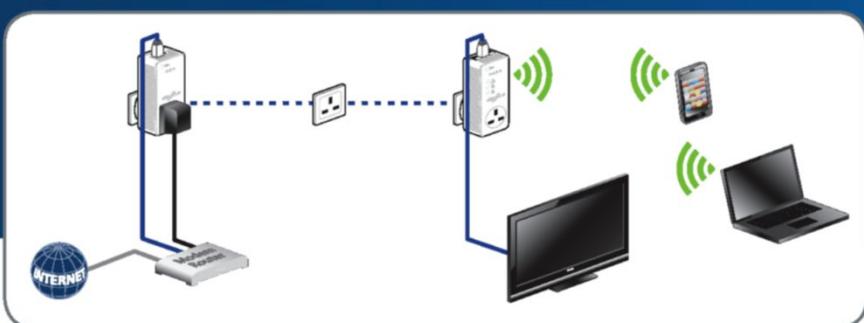
# Wi-Fi from any electrical socket!



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[PC World](http://pcworld.co.uk)

# BACKED TO THE FUTURE

It's reshaping the tech landscape, giving thousands of innovative projects a leg up and bringing us cool new gear we otherwise couldn't have. Here are Kickstarter's finest moments to date



## LET'S (KICK)START WITH THE BASICS...

### I've heard of Kickstarter. What is it again?

It's a site that crowdfunds new ideas. Instead of putting on a suit and pitching them to *Dragons' Den*, start-ups and entrepreneurs present their inventions to the general public with a funding 'target'. If enough people stick in a quid, there's enough money in the pot to start getting it made.

### So it's where millionaires throw their spare change?

Nope. Most projects have targets under US\$10,000, and the tiered system means everyone can pledge according to their budget. The big earners come from the tech world, where punters like us are keen to fund innovation. Hobbyists like the way it reinvents classic hardware and games too.

### What's in it for me if I pledge some of my hard-earned?

Often you can chip in as little as one dollar or a pound in return for a thank you message or credit, but the more money pledged, the bigger the rewards. Pledging more usually means getting hold of your product first or even receiving a prototype. Big-money types gain access to the makers and more.

### What's this 'days to go' figure?

If a project hits its target by that closing date, your pledged money heads off to the maker. If it doesn't, the process is cancelled and no-one pays a thing. When projects exceed their targets, its makers can set higher aims called 'stretch goals'. These usually consist of bonus features, for instance the Pebble's makers added waterproofing.

# INTERNET OF THINGS

Connected devices to smarten up your home life



"We were really surprised by the passion of people who backed our project. They're very participatory and provide great feedback. A lot more than in a traditional consumer relationship"

**Leor Grebler**

## Ubi Voice-activated home helper

**US\$220 | Funded: 637% | Pre-order now**

Ubi is a voice-activated computer that plugs into a power socket and sits there, like a brainy air freshener, waiting for you to ask it a question. A master of many tasks, it can perform web searches, work as a wireless speaker or be a baby monitor. Plus it has onboard temperature, humidity, barometric pressure and light sensors, so it'll be an endless source of interesting trivia and conversations about the weather. It runs on Android 4.1, so there's an army of nerds out there ready to hack it, and it also has a USB connector for piggybacking other devices and Bluetooth 4.0 for wireless connectivity. Oh, and it's an alarm clock.

[theubi.com](http://theubi.com)



### LIFX

**US\$70 | Funded: 1314% | Due: Now**

One of Kickstarter's biggest success stories, LIFX took well over a million dollars from people looking for innovation in the boring old world of lightbulbs. It offers a Wi-Fi controller, linked to a smartphone app, which lets you tweak the colour and brightness of a bulb via a smartphone app. You can also get them to flash when you get a Twitter mention, or use a group to create a lounge strobe.

[lifx.co](http://lifx.co)



### Smart Things

**US\$300 | Funded: 483% | Pre-order now**

This unassuming blob is here to make life a bit more *Star Trek*, triggering alerts when doors open, turning things on when it senses your presence and more. Thermostat controllers, motion sensor add-ons and plug socket interrupters let you command electronics via the app, meaning your house can basically turn itself off when you go out. OCD nerds and eco-warriors will sleep better, at least.

[smartthings.com](http://smartthings.com)



### Harvest Geek

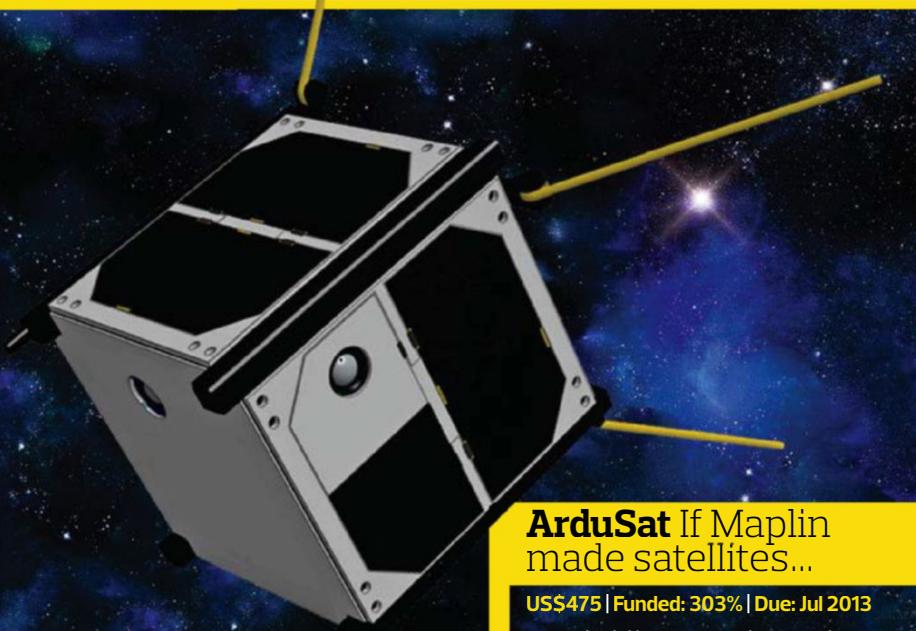
**£tba | Funded: 188% | Due: Aug 2013**

HarvestGeek adds nerdy excitement to the often mundane world of growing carrots and runner beans. Its configurable hardware sensors automate parts of the tending cycle. So you can have it pump water when it detects a drop in soil moisture levels, open greenhouse windows if it's getting too warm for your tomatoes, and ping messages via social networks about the status of your crop.

[harvestgeek.com](http://harvestgeek.com)

# SPACE

Electronic endeavours that are out of this world



"The downside with going low-risk on the parts is that you want space-proven quality, so you have to pay space-proven price. That's why we put the project up on Kickstarter!"

**Joel Spark**

## ArduSat If Maplin made satellites...

**US\$475 | Funded: 303% | Due: Jul 2013**

It may look like a tiny washing machine, but ArduSat isn't testing grass stains in zero G – it's a small, 10x10cm satellite built using off-the-shelf parts. A bank of Arduino processors runs its sensors, which include a CO<sub>2</sub> meter, Geiger counter and spectrometer, and anyone can design apps to take control of those sensors, its camera, gyros and radio. The minimum you'll pay for ArduSat time is now US\$475, but Kickstarter rewards started at US\$25 for a photo from space signed by the team, while US\$300 bought a time slot to beam a personal message back from space. It's how we would propose if we ever married.

[nanosatisfi.com](http://nanosatisfi.com)



## THE CROWD-FUNDED SPACE RACE

Think Kickstarted satellites are cool? Non-profit project

Copenhagen Suborbitals is aiming to send a human into space using crowdfunded cash.

Its CEO Kristian von Bengtson explains why the privateer space boom is upon us...



### Why now for the crowdfunded space race?

In general there is a big worldwide DIY movement going on in all areas and space flight is just one of those. Cheaper components and the huge outreach of the internet are a powerful combination too.

### Why the new interest in space tech?

A big factor has been the X Prize, which led to SpaceShipOne making the first privately funded space flight in 2004. X Prize was based on the Orteig Prize, which was set up in 1919 to further development of airplanes. It seems to be working.

### How important is the internet to the space boom?

I don't believe our project would have been possible 20 years ago. Ten, perhaps. We are relying on the internet for funding and information. It's one of our greatest tools.

### Where's the money coming from?

Almost 95% is from donations, sponsors and crowd-funding. It has a self-regulating effect. If we are lazy, the donations will stop. If we are progressive and show results we get rewarded. I like that.

### Why not just take corporate cash?

One big sponsor is likely to want to take charge and demand certain milestones. Crowdfunding is different because the investors' aim is the project, not profit. That's why we want to stay independent.

Keep up with the project by following von Bengtson on Twitter @KvonBengtson

## SkyCube

**£sold out | Funded: 141% | Due: Sep 2013**

With the aim of taking one small step towards democratising space exploration, this cheap nano-satellite will allow supporters to follow its fortunes via an app called Satellite Safari. Pledges of just \$6 bought on-demand access to photos from its VGA camera, with extra cash bagging you the opportunity to customise its regular 'ping' messages back to earth. Sure beats a train station birthday card.

[southernstars.com](http://southernstars.com)



## KickSat

**£sold out | Funded: 248% | Due: Sep 2013**

If SkyCube's shared mission concept isn't exciting enough, KickSat is sure to get space buffs aroused. It packs hundreds or even thousands of mini satellites known as Sprites into a larger orbiter built around the cheap CubeSat format. Once up, they are set free, floating about for a few days or weeks, before burning up on re-entry. You could've had one for \$300, beaming your initials back to earth.

[spacecraftresearch.com](http://spacecraftresearch.com)

# GEEKCESSORIES

Innovative add-ons to turbocharge your tech

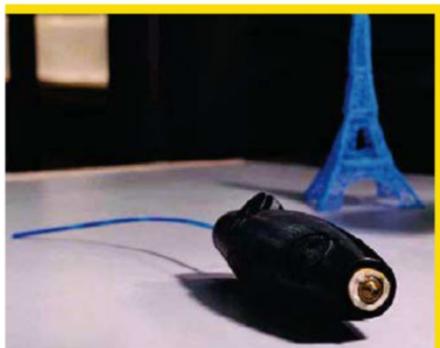
**Lumio** 'Reading lamp' redefined

**US\$95 | Funded: 906% | Due: July 2013**

For every ten misguided Kickstarter ideas, there's one so brilliantly simple you'll harangue yourself for not inventing it five years ago. The Lumio is just that – a portable, rechargeable and weatherproof lamp that folds into a hardback book when you don't need it, and fans open into the barbecue talking point you see above. Its built-in magnets promise to help it cling on to most metallic surfaces, and the battery will last for eight hours before needing a top up with the bundled USB charger. Not surprisingly, the Lumio beat its funding target seven times over – expect to see it at picnics everywhere from July. [hellolumio.com](http://hellolumio.com)

"Kickstarter is the perfect platform for design start-ups. You get to talk directly to consumers and get a valuable insight into what they really want from a product"

**Max Gunawan**



## 3Doodler

**US\$75 | Funded: 7426% | Due: Oct 2013**

The most impressive of the many 3D printers on Kickstarter, 3Doodler is a sort of magic, molten plastic-spewing pen, which lets you draw 3D sculptures right there in front of you. And if you're rubbish at drawing, that's OK: the makers are releasing stencils which you'll be able to draw around, then pop up, stick together and admire. It's no toy though – the tip of the pen hits 270 degrees. Toasty.

[the3doodler.com](http://the3doodler.com)



## Snappgrip

**£70 | Funded: 153% | Pre-order now**

You know all that hard work that smartphone manufacturers have been doing to cram high-end camera tech into skinny phones? Well, Snappgrip plans to undo it all by beefing up the iPhone 4/4S/5 and Samsung Galaxy S III cameras with a snap-on unit that adds more advanced controls. You get a proper shutter button with soft-press to focus, tripod mount and charging point plus a companion app.

[snappgrip.com](http://snappgrip.com)

INCOMING



## Mauz

**US\$70 | Funded: 18% | Due: tba**

We had high hopes for Mauz, but it fell short of its ambitious US\$150k target. The idea is that it turns your iPhone into a gesture-based, 3D control system for operating any computer nearby; use it as a customisable mouse, or a Wii-mote clone with a laser pointer, or a portable touchpad. Happily, it looks likely to rise from the Kickstarter ashes and find its own way on to the electronic shelves.

[mauzup.com](http://mauzup.com)

# ROBOTS

Making automatons available to everyone



"The community has developed a low-cost telerobotic submarine that can be built with mostly off-the-shelf parts. The goal is to democratise underwater study and exploration"

**David Lang**

## OpenROV Cousteau with an HD camera

**US\$830 | Funded: 558% | Available now**

If your life has been lacking a properly open-source undersea exploration vehicle, you're in luck – OpenROV is just that. The 30cm-long craft comes as a kit and is designed to explore depths of up to 100m, with a trio of thrusters giving it superb manoeuvrability. It's powered by eight big old C batteries, giving it just enough weight to be neutrally buoyant, and is controlled via a web browser on a computer connected to its wire tether, which also carries the live video feed. It's like being a very low-budget James Cameron, boldly discovering dumped prams and shopping trolleys at the bottom of your local pond.

[openrov.com](http://openrov.com)



### iStrike Shuttle

**US\$130 | Funded: 109% | Available now**

The sort of advanced payload delivery system of which Nazi rocket scientists could only dream, the Shuttle is an iPhone-controlled miniature helicopter. So far, so predictable. But the fact it can dump a ping pong ball on the head of its unsuspecting target is a whole new level of awesome. Supposedly you'd write a message on the ball with a marker, but it'd be more fun just to annoy people with it.

[dreamcheeky.com](http://dreamcheeky.com)



### B9Creator

**US\$2495 | Funded: 1026% | Pre-order now**

You won't buy things from shops in 2017 – you'll get a blueprint off the internet, then print them out at home. The likes of this next-gen 3D printer are getting us closer to the replicator dream, claiming to offer higher resolution output, and therefore smoother results, than current entry-level models. An open API lets anyone hack their own code, and it comes with all you need to get printing.

[b9creator.com](http://b9creator.com)



### Incredible HLQ

**\$10,000 | Funded: 153% | Due: Jun 2014**

The Chinook equivalent of the many iPhone toy helicopters available today, the HLQ team is creating a miniature lifter capable of luging a 23kg load. This is no battery-powered, endlessly-recharging piece of plastic tat: it has engines; it runs on petrol; it costs the same as a family car. That's a small price to pay for a four-rotor monster that could lift your entire holiday baggage allowance.

[incredibleHLQ.com](http://incredibleHLQ.com)



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Projects that broke the mould



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**Keno Mario-Chae**

[ Picture Cuer ([cuer.co.uk](http://cuer.co.uk)) ]

## Cuer Solar, so good

£10 | Funded: 105% | Due: Oct 2013

Cuer isn't a product for sale, it's more about helping fund a dream. The team behind it is a group of 60 Cambridge Uni students looking for cash so they can enter the World Solar Challenge 2013 – a solar car race across the fortunately rather sunny Australian desert – and beat their multinationally funded rivals. Backers got their name on the carbon-fibre solar car for a tenner, could go to see the UK launch for £300, or even accompany the race team across Australia for £5000. No-one took them up on that last one. Well, 3000km is a long way to maintain a decent level of small talk with solar-power enthusiasts.

[cuer.co.uk](http://cuer.co.uk)



## Duo

£sold out | Funded: 197% | Due: Apr 2013

The Duo aims to bring back the joys of twin lens reflex cameras, offering a US\$210 DIY kit to enable enthusiasts to build their own. The new take on the old classic is made from laser-cut birch plywood, but requires buyers to add the innards themselves. Trawling eBay for lenses and film backs (either peel-apart instant film or traditional 35mm) could be a pain, but the shot-from-the-waist results look worth the effort.

[duo-tlr.blogspot.com](http://duo-tlr.blogspot.com)



## Oil Can Guitar

US\$300 | Funded: 169% | Due: Jul 2013

Taking improvised South African township instruments and adding maplewood necks and rosewood fingerboards, the Oil Can Guitar is an odd mixture of low- and high-end. Sadly it's not constructed with actual oil cans, but at least the end result is a product that won't stain the carpet during practice sessions. It blew through its US\$32k target, with two rich backers paying US\$1000 to visit the makers.

[bohemianguitars.com](http://bohemianguitars.com)

## BACK TO THE DRAWING BOARD

Not every Kickstarter project can be a runaway success. Here are some that didn't exactly set the world on fire...

### Game Tank

**Percent funded: 1%**

A sound idea, if a little dated, Game Tank was intended to create a solitary confinement pod for serious gamers so they could barricade themselves away from light, people, distractions, toilet facilities and the rest of the world.

A gamers' Fortress of Solitude, if you will. No, you're right – it is just a big box.



[kck.st/14QjABk](http://kck.st/14QjABk)

### Cat-Scans

**Percent funded: 2.5%**

Scanning cats might be the sort of thing that goes down well online, where people will look at anything other than the part of the computer that contains work. But in the real world, with a US\$25 asking price, no-one is interested in a whole book full of blurry cat pics. Our faith in humanity has been restored.



[toonutsproductions.com](http://toonutsproductions.com)

### Capify

**Percent funded: 31%**

Introducing itself as 'the baseball cap, reinvented', this NFC-enabled hat promises to direct anyone who taps their smartphone against your skull to a web page of your choice. That could be your Instagram portfolio, the SoundCloud page for your flute-tronica double album, or maybe just a link to the looping sound of a sad trombone.



[capify.me](http://capify.me)

### JewelGram

**Percent funded: 10%**

Just US\$1999 could get your favourite Instagram photograph printed out on an 18 karat gold ring complete with five diamonds. Handy if you're after birthday present ideas for Lady Gaga, but hardly likely to appeal to the sane, austerity-struck peoples of the 21st century.



[jewelgram.com](http://jewelgram.com)





## DiskStation DS212j NAS Server

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North Face Hyper-Track Guide  
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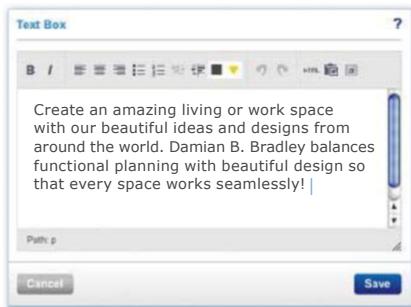


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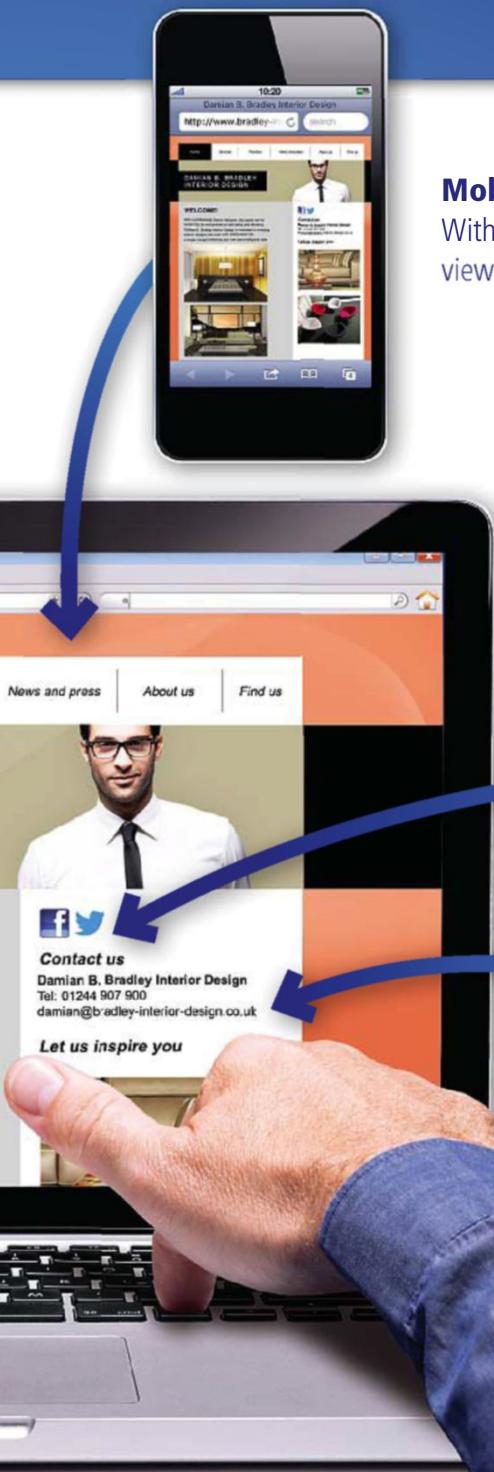
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# SMALL BODIES BIG PICTURES

These premium compacts prove you no longer need a chunky DSLR for supreme image quality

## WHAT'S NEW?

High-end compact cameras get smaller and lighter every year but somehow keep gaining more features and taking better photos. Weird, huh? This year's crop is the best yet; but which should you buy?

## WHAT WE TESTED...

### Samsung EX2F £430

As part of Samsung's 'Smart' camera range, the EX2F has built-in Wi-Fi for cable-free sharing and archiving of photos. Great – but what are the pics like?

### Pentax MX-1 £400

With its knowing retro design and brass body, Pentax's most advanced compact is designed to appeal to the heart as much as the head.

### Canon PowerShot G15 £480

Canon G-series cams have long ruled the pro-compact roost, but the G15 debuts a new, slimmed-down design. Will it continue a proud family tradition?

### Sony DSC-RX100 £550

The RX100 is built for true compactness, being the only model here you can really call pocket-sized. But with the biggest sensor on test, it's no small fry.

### Nikon Coolpix P7700 £500

Much like the Canon, the P7700 is aimed squarely at the pro-on-a-day-off market. It also has the biggest zoom range on test, so could be a contender.



## WHAT TO LOOK FOR

### ■ Size and weight

It's obvious, maybe, but a compact camera should be compact. There's always a trade-off between size and loads of useful features though; you won't get both.

### ■ Usability

Advanced compacts offer manual controls, giving you plenty of scope for creative shooting. A good layout and choice of controls is therefore vital.

### ■ Maximum aperture

The smaller the f-number, the more light your lens will let in. This helps you get sharper images in low light and nice blurry backgrounds. Look for f/1.4 or f/1.8.

### ■ Screen quality

With viewfinders falling out of fashion, screens are now the chief way to compose photos. Look for displays that offer lots of dots plus a bright, contrast-y image.

## JARGON BUSTER

### ■ ISO

A measurement of the sensor's light sensitivity. Ramp it up and you'll be able to shoot in darker conditions.

### ■ Noise

Grainy artefacts that appear in high-ISO shots, lessening

sharpness and detail.

There's no such thing as a free lunch in photography.

### ■ Exposure compensation/EV

A way of automatically adjusting the image exposure to make shots darker or lighter. Useful when the camera isn't capturing a scene the way you want it to – for instance in a very dark or bright room.

### ■ RAW

An image file which contains all of the data captured by the camera's sensor.

Shooting in RAW allows for later tweaking of white balance, exposure and more.

### ■ Aperture

The size of the lens' opening. A larger aperture (lower f-number) means more light reaches the sensor.



# Samsung EX2F

£430 | [samsung.com/uk](http://samsung.com/uk)

**Samsung is a master at making connected gadgets, and the ace in the EX2F's sleeve is built-in Wi-Fi.**

This allows it to commune directly with your router or smartphone so you can back up photos to your computer, phone or the cloud or share them on Facebook. It also means you can use a mobile device's screen as a remote viewfinder, tapping icons to zoom the lens in and out and take snaps.

While this all sounds wondrous, it's handled with the grace of gorilla rollerskating through IKEA; the sheer amount of fiddling required to connect the various Wi-Fi-toting devices put us off more than a cursory amble through the options. The Android-equipped Samsung Galaxy Camera is a wiser choice of connected snapper.

But there's plenty about the EX2F that succeeds. The bright

f/1.4 aperture lens and two-pronged approach to image stabilisation makes it an impressive low-light performer, the AMOLED screen is a beauty, RAW capability is a bonus and it shoots excellent HD video at up to 30fps.

But while it's a capable all-rounder, its images aren't mind-blowingly noise-free or colour-rich, and given the flaws in its usability it doesn't do enough to impress us.

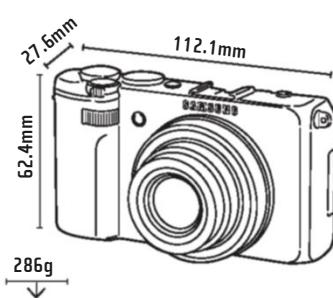
The built-in flash is fine for basic night-time and indoor shooting, but when the murk has truly set in this hotshoe allows you to use a more powerful external flash.



## STUFF SAYS

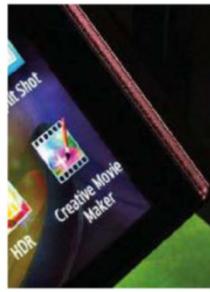
A bright lens and lovely screen are plus points, but the EX2F's Wi-Fi skills and images disappoint

★★★☆☆



### TECH SPECS

**Sensor** 12.4MP, 1/1.7in BSI CMOS  
**Screen** 3in, AMOLED, 614k dots, tiltable  
**Lens** 3.3x zoom (24-80mm equivalent)  
**Aperture** f/1.4-f/2.7  
**ISO** 80-12800  
**Video** 1080p@30fps  
**Hotshoe** Yes



### < Get the AMOLED out

The 3in screen is a peach, using AMOLED tech to serve up rich colours with virtually no lag. It's also physically adept, in that it can be twisted into almost any position.

### > Double tops >

The Samsung's two dials are handy: the right is a basic mode dial, but the left allows you to switch between single and multi-shooting, and quickly set the timer.



# Pentax MX-1

£400 | [pentax.co.uk](http://pentax.co.uk)

**By far the most striking of these cameras design-wise, the MX-1 oozes '60s style.** Its brass top and bottom plates further add to its desirability, but they also add a lot of weight. That, coupled with its sheer size, means it pushes the boundaries of that 'compact' tag.

Performance-wise, there's less to write home about. The lens' f/1.8 aperture, which narrows slightly to f/2.2 at full 4x zoom, lets in a lot of

light, but its shooting abilities aren't really as loveable as its looks. It's far from a terrible camera, but even at low ISO settings grain caused by noise affects fine detail. Granted, you need to look at the shots closely, or print them out at a large size, to see this – but others here don't have this problem. At times it also feels slightly sluggish to operate, powering on slowly and struggling to autofocus in low light.

Plus points? There are several. The Pentax has a fantastic, tiltable LCD screen, an excellent array of manual controls and is also the cheapest camera here – never a bad thing. It's also one of the best for video, with a silky smooth 720p@60fps option.

But ultimately you judge a camera on its pictures, and here the Pentax falls down. Yes, it's a looker, but we'd look elsewhere.

As with the Samsung and Nikon, the Pentax has an **old-fashioned removable lens cap**. It looks nice, but it'll need to be taken off before you turn the camera on, and that slows operation down.

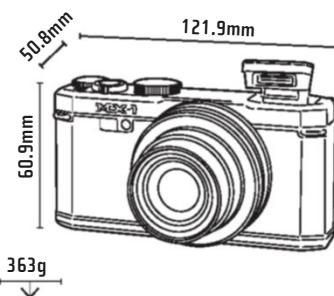
**The brass top and bottom plates are intended to become worn over time**, with the metal underneath peeking through to give each MX-1 an individual look. Well played, Pentax.

## STUFF SAYS

**The MX-1's shooting skills can't quite match up to its matinee-idol good looks**



The **textured rubber band around the MX-1** not only serves the retro look well, but also adds some welcome extra grip to what is a heavy camera.



**TECH SPECS**  
**Sensor** 12MP, 1/1.7in CMOS  
**Screen** 3in, TFT, 920k dots, tiltable  
**Lens** 4x zoom (28-112mm equivalent)  
**Aperture** f/1.8-f/2.5  
**ISO** 100-12800  
**Video** 1080p@30fps  
**Hotshoe** No



### < Screen test

This LCD is one of the sharpest on test, with close to a million pixels squeezed into its 3in span. It can also be tilted up or down for easier composition in awkward spots.

### Pro friendly >

While there's no hotshoe for an external flash, the MX-1 does include some nods to enthusiasts, with RAW shooting, full manual mode and an exposure compensation dial.



# Canon PowerShot G15

**£480 | canon.co.uk**

If you're looking for pro features in a compact camera, the G15 has them in spades. It's the only model here with an optical viewfinder, the only one that can take lens filters and it has a useful hotshoe for connecting an external flash.

Its massive array of dials and buttons might look daunting to the uninitiated, but anyone who knows their aperture from their exposure compensation will appreciate the

sheer level of control at hand. That pro quality is also clear in the images it takes. If you like your photos crisp, clean (at lower ISOs) and blessed with accurate colours, and if you crave an autofocus that doesn't spend three seconds hunting for a lock, then the G15 ticks all those boxes. And as with most Canons, it'll also record lovely 1080p video at a filmic 24fps.

Is it perfect? Not quite. It's much

smaller than its predecessor the G12, and that's led to the odd compromise: there's no longer a dedicated ISO dial or tiltable screen, for starters. But then again, this is supposed to be a compact camera, so we won't complain too loudly.

The Sony just pips it overall, but if you need a compact to back up your DSLR and demand the likes of a viewfinder and filters, then this Canon should be the one for you.

## STUFF SAYS

Canon has kept the G-series brilliantly pro-friendly while cutting it down in size. Impressive

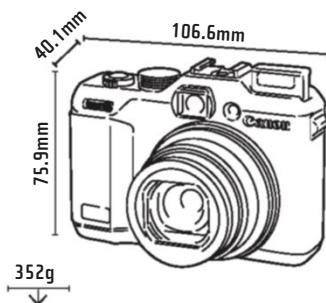


Although smaller and lighter than previous G-series cameras, the G15 still feels almost tank-like in its solidity and sturdiness. It looks like it will survive a fall.



The second dial allows you to quickly change the exposure compensation, but the G15 does away with the ISO dial used on older models. While it keeps the size down, that's a shame.

Unlike its predecessor the G12, the screen is fixed rather than tiltable. Again, we suspect it's been done to cut down the bulk of the camera. And again, it's a feature we miss.



### TECH SPECS

**Sensor** 12.1MP, 1/1.7in CMOS  
**Screen** 3in, TFT, 922k dots, fixed  
**Lens** 5x zoom (28-140mm equivalent)  
**Aperture** f/1.8-f/2.8  
**ISO** 80-12800  
**Video** 1080p@24fps  
**Hotshoe** Yes



### < Zoom with a view

The G15 is the only camera here with an optical viewfinder. This aids framing in bright sunlight and also helps you keep it steadier when you're shooting. We like it.

### Ring in the changes >

The lens ring can be taken off and replaced with a filter adapter, making the Canon the only model here able to use a polarising filter – a boon when shooting outdoors.



Dell recommends Windows.

## This is the story of Thomas and the alternate universe.

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## Watch the iON man adventures

The iON Man is a nifty little action camera that allows you to document your every experience from sporting showcases to family fun before wirelessly uploading, via your smart device, to Facebook or YouTube in an instant.

Fully equipped for all types of adventures the iON Man is fully waterproof, has a super handy wide angle lens and can take both video and still pictures among its travels. The light weight product comes with a wide choice of accessories for easy mounting options whether it be helmets, boards or bikes.



[iontheaction.com](http://iontheaction.com)

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# Sony DSC-RX100

£550 | [sony.co.uk](http://sony.co.uk)



**Now this is a compact camera; of the five snappers here, only the RX100 is truly pocketable.** It's also impressively light given its metal body, and looks suitably premium in a minimalist kind of way.

Its diminutive size does mean the buttons scattered over the back of the camera are tiny, though, and if you're large of finger the Sony's controls may be a tad too fiddly for your banger-like digits.

That would be a shame, because this is a fantastic performer. While all the other cameras here have 1/1.7in CMOS sensors, the RX100's is a massive 1in Exmor job. That gives your shots incredible amounts of detail – evident when zoomed in on a monitor – and also helps keep noise to a minimum. Combined with its mighty ISO range (125 to 25600) and speedy f/1.8 aperture lens, you'll really feel

the benefit when shooting in low light. Punchy contrast levels further enhance that detail, all of which adds up to excellent photos in all conditions.

Factor in the swift autofocus, genuinely useful lens ring, RAW shooting, excellent manual focusing skills and silky smooth full HD video recording at 50fps and we have our winner. As long as your fingers aren't too chubby...

## STUFF SAYS

A premium compact that is very premium, very compact and takes beautifully detailed shots



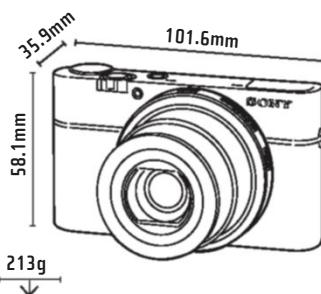
The RX100's smooth metal shell oozes an alluring minimalism, but gives you precious little to grip on to; there's just a small patch of textured plastic at the back for your thumb.



The Fn button, and the left, right and centre buttons on the dial, can be assigned to custom functions, adding a welcome dollop of user-friendliness.

Aimed at the noobs out there, the '?' button brings up a built-in guide to taking better photos.

Useful, but why not make it assignable to other functions for those who don't need it?



### TECH SPECS

**Sensor** 20.2MP, 1in Exmor  
**Screen** 3in, TFT, 1,228k dots, fixed  
**Lens** 3.6x zoom (28-100mm equivalent)  
**Aperture** f/1.8-f/4.9  
**ISO** 125-25600  
**Video** 1080p@50fps  
**Hotshoe** No



### < None more black

The Sony's screen may not be tiltable, but it's a little wonder nonetheless, packing more pixels and contrast than any other here and excelling at showing off your snaps.

### Let's twist again >

The lens ring can be turned to quickly change settings. Its function is customisable, so you can set it to adjust anything from ISO to aperture and even special filter effects.



# Nikon Coolpix P7700

£500 | [europe-nikon.com](http://europe-nikon.com)

**With almost twice the range of its rivals, the P7700 is the nearest you'll find in this test to a 'superzoom' camera.** OK, so its 7.1x zoom is some way from true superzoom territory, but with the equivalent of a 28–200mm lens bolted on to its front, it will get you closer than any other here.

Elsewhere, it's hard to separate from the Canon G15. It has a virtually identical sensor, similar

size and resolution screen and an exterior which looks equally tough, equally dour and equally laden with pro-friendly knobs and buttons. Even the price is similar.

It does have two advantages over the Canon, namely that useful zoom and a vari-angle screen which can be twisted around like a pretzel to give you a good view of what you're shooting. On the downside, there's no viewfinder

and no way to attach filters. So, honours just about even.

As you might expect, image quality is of a similarly high level to the other leading models here, although it does have a tendency to overexpose shots slightly and noise is a smidge more noticeable when you look at them up close.

So, in the battle of the aimed-at-pro compacts, we'd give the edge to the Canon G15 – but only just.

## STUFF SAYS

**Big of zoom and solid of build – but the Nikon doesn't wow us quite enough to take the cake**

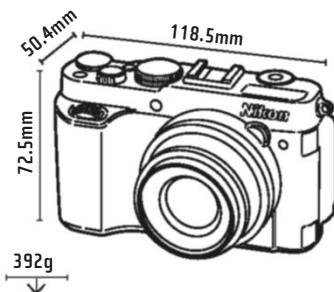


Cleverly, the P7700 features two adjustment dials: one on the back for your thumb and one on the front for your forefinger as you grip the camera.



The EV dial on the right is useful, and this leftmost dial is a godsend, allowing you to quickly change settings such as ISO, white balance and colour style.

The Nikon's video skills are on a par with those of its rivals, but it is the only one to feature a dedicated microphone connector – essential if you're serious about film-making.



### TECH SPECS

**Sensor** 12.2MP, 1/1.7in CMOS  
**Screen** 3in, TFT, 921k dots, tiltable  
**Lens** 7.1x zoom (28–200mm equivalent)  
**Aperture** f/2.0–f/4.0  
**ISO** 80–6400  
**Video** 1080p@30fps  
**Hotshoe** Yes



### < Little big man

A magnesium alloy frame ensures the P7700 is as sturdy as anyone could want, but for a compact camera, it's pretty big and bulky. Thankfully it's not particularly heavy.

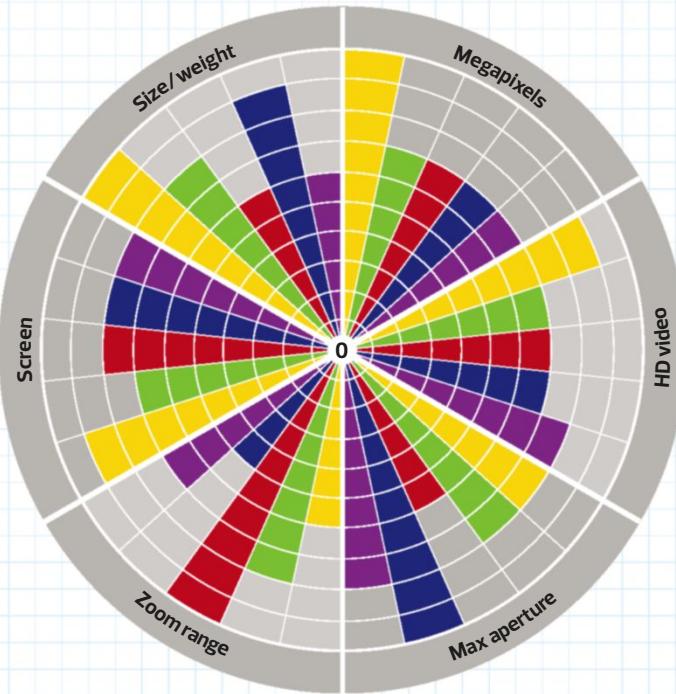
### Long lens >

While the 7.1x optical zoom offers the biggest range of any in the test, Nikon has sacrificed a little on the aperture front: it's f/2.0 wide open. A reasonable compromise.



## STUFF'S SUPERTEST SPECBURST™

If style were the only factor in this test, the **Pentax** would win hands down. It's not, so its so-so images leave it in last place, just behind the low-light happy but flawed **Samsung**. Next come the two grand dames of the camera world, with the long-zoomed **Nikon** just losing out to the viewfinder-equipped **Canon** for pro-friendly features and picture quality. Which leaves the big-sensored, small-bodied and generally rather brilliant **Sony** as our deserving winner.



### SONY DSC-RX100 ★★★★☆

**Pros** Small, lightweight design; excellent photo and video quality  
**Cons** Tiny buttons; lack of grip



### CANON POWERSHOT G15 ★★★★☆

**Pros** Excellent image quality; optical viewfinder; pro controls  
**Cons** Chunky design; fixed screen



### NIKON COOLPIX P7700 ★★★★☆

**Pros** Big zoom range; twistable screen; pro controls; mic output  
**Cons** Bulky body; slightly noisy pics



### SAMSUNG EX2F ★★★☆☆

**Pros** Big aperture; AMOLED screen  
**Cons** Fiddly Wi-Fi features; image quality not the best



### PENTAX MX-1 ★★★☆☆

**Pros** Gorgeous '60s design  
**Cons** Brass plates make it heavy; average image quality; sluggish in use



## THE WINNING TEAM

### 1 Sony DSC-RX100

£550 | [sony.co.uk](http://sony.co.uk)

Our test winner may be small of body, but its DSLR-sized sensor serves up top-class images. Manual controls offer plenty of scope for enthusiasts, too.

### 2 Apple iPad 4

£400 | [apple.com/uk](http://apple.com/uk)

While we love the RX100's screen, the latest iPad's supremely sharp Retina display makes it the perfect portable gallery for your masterpieces.

### 3 Apple Lightning to SD card reader adapter

£25 | [apple.com/uk](http://apple.com/uk)

There's no need to go through a tiresome computer middleman to get those photos on the iPad; just hook this up and do it directly.

### 4 Sony LCJ-RXA case

£70 | [sony.co.uk](http://sony.co.uk)

Keep the RX100 dust- and scratch-free with this pleather case. It's designed in such a way that you can get photos without needing to remove the camera.



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PO Box 326, Sittingbourne, ME9 8FA**

## Romain Jerome Moon Fighter Fountain Pen

£1350 | [romainjerome.ch](http://romainjerome.ch)

It could double as a miniature in a sci-fi flick, but this pen is more at home scrawling enormous numbers on cheques. Each of the limited-edition scribblers has a titanium writing nib, is held together by 48 hand-fixed rivets, and houses real moon dust in its 'cockpit' section. The closest we'll get to that is taping a Bic to a paper plane and shoving some lint down the barrel.





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### Love Hulten 4M computer

€2800 (made to order) | [lovehulten.com](http://lovehulten.com)

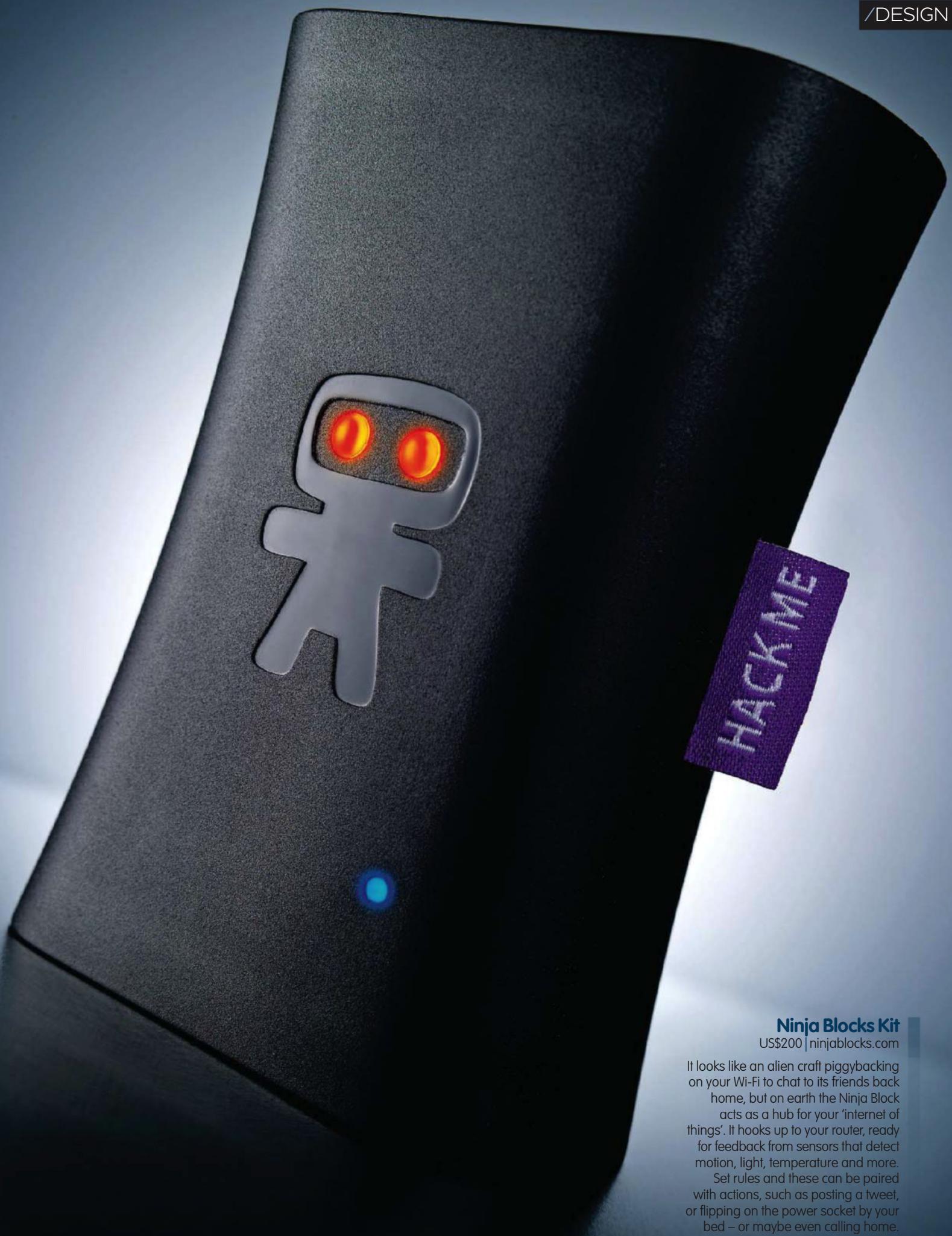
This walnut-encased PC takes care of modern-day business – but with all the swagger of an HG Wells contraption. That glowing red 'eye' could belong to HAL 9000's great-grandad, but it's actually an old-school magnifying lens that gives a view of some remarkably new-school innards: an i5 chip with 8GB RAM and a 500GB HDD. Go on, switch it on with that joystick lever. Babbage would be proud.

**Bisque Hot Hoop**

from £935 | [bisque.co.uk](http://bisque.co.uk)

Is it a giant slinky? Maybe a premium set of hula hoops? Nope: this curly, curvaceous icon is actually the world's most stylish radiator. Yes, like most radiators it's a set of pipes with hot water running through them – but just look at those stainless steel curves, with concealed valves for subtle temperature tweaking. We haven't been so excited about plumbing since the first time we played *Super Mario Bros.*





**Ninja Blocks Kit**  
US\$200 | [najablocks.com](http://najablocks.com)

It looks like an alien craft piggybacking on your Wi-Fi to chat to its friends back home, but on earth the Ninja Block acts as a hub for your 'internet of things'. It hooks up to your router, ready for feedback from sensors that detect motion, light, temperature and more. Set rules and these can be paired with actions, such as posting a tweet, or flipping on the power socket by your bed – or maybe even calling home.

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**Lapka**US\$220 | [mylapka.com](http://mylapka.com)

With its wood and Braille-like finish, Lapka could be a posh puzzle game. But it's really a 'personal environment monitor', here to tease out the mysteries of your surroundings. The four sensors each plug into your headphone jack, sending info on humidity, radioactivity and electromagnetic fields back to an iOS app. Why not plunge the nitrate sensor into a lettuce to find out if it really deserves that 'organic' label?





**Vertigo Bird  
Jinn Table Lamp**

£445 | [wayfair.co.uk](http://wayfair.co.uk)

The humble lamp has long been due a redesign, so three cheers for the Jinn. This stylish light-emitter inverts the traditional lamp setup by housing a 42W halogen bulb in its base. A central glass stem supports a reflector on the top half, which ensures it still pumps out photons, while a rotary dimmer keeps things cosy. Now, can somebody give the wheel a rethink?

## MYSTERIOUS ARTEFACTS

### Voynich Manuscript

This 1400s manual is full of plant illustrations and info. Fine, but most aren't known species and its language is indecipherable.



### Baghdad Battery

In 1938 a clay jar full of copper and iron elements was found near Baghdad. It's thought to be the world's first battery, but we have no idea what it was used for.



### Antikythera mechanism

The world's first analogue computer, this astronomical clock from ~100BC was found in a shipwreck and used tech that wouldn't reappear until the 18th century.



### Las Bolas spheres

Parts of Costa Rica are scattered with almost perfect stone spheres, from just a few cm to 2.5m across. They date back to 600AD, and no-one knows what they're for.





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# GOOGLE CHROMEBOOK PIXEL

£1050 | [google.com](http://google.com)

**What happens when you combine a super-simple netbook OS with the luxury stylings of a premium Ultrabook and the highest resolution of any laptop ever? Tony Horgan spent one month finding out.**

STUFF'S DONUT OF TRUTH™ CHROMEBOOK PIXEL

Classy build and design

Severely limited OS

Flawed app store

Way too expensive

Gorgeous screen



We've seen Google's Chrome OS before and it's worked best on sub-£250, ARM-based machines. The pricey **Pixel runs the same browser-based OS, but on far beefier hardware**: namely an Intel Core i5 chip with HD4000 graphics. Given that Chrome requires little power, that muscle seems mainly to be directed at the screen.

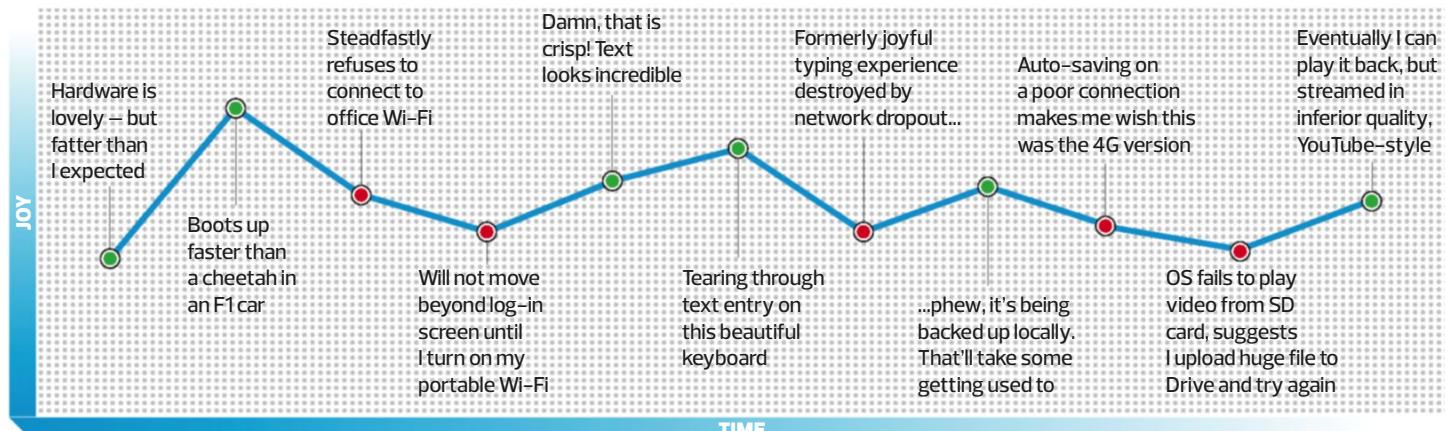
On a machine that's designed to be almost permanently online, **we'd have liked an Ethernet port. And USB3.0, and possibly HDMI**. What you get is a pair of USB2.0 ports and an SD card reader, (essential on this local-storage-phobic system), along with a Mini DisplayPort and a headphone socket.

The Pixel has obviously been named for its major spec: **the 2560x1700 screen is super-sharp, with a class-leading 239ppi** that renders text amazingly clearly. It's also a touchscreen, which is (literally) handy for scrolling, and its unusual 3:2 ratio means you see more of most websites than on a standard 16:9 panel.

The chiclet **keyboard is a joy to type on**, easily one of the best we've used. Our only gripe is THE REMOVAL OF THE CAPS LOCK KEY, which has been ousted by the (admittedly handy) Search key. Whether this bugs you will depend on whether you spend more time Googling or TYPING LIKE THIS. It's Alt-Search to cap up, BTW.

It's 1mm thinner than a 13in MacBook Air and exceptionally well made, but without the Air's tapering sides the Pixel feels chunkier, and it's 170g heavier. We're guessing that's why Google didn't fill up the rest of its partly hollow frame with a bigger battery, leaving it with a run-of-the-mill **five hours between charges**.

## STUFF'S EMOTOGRAPH PIXEL-PEEPING WITH THE GOOGLE CHROMEBOOK



## CHROME OS: WHAT IT CAN (AND CAN'T) DO



### CAN... do without local storage

In this cloud-based OS, you leave your files on the server (the Pixel comes with 1TB of Drive space, free for 3 years) and access them from any computer. And that way, when your swanky laptop gets nicked, you don't lose any files.



### CAN... run amazing 'apps'

The best HTML5 websites, such as BBC Radiophonic Workshop ([webaudio.prototyping.bbc.co.uk](http://webaudio.prototyping.bbc.co.uk)) and HexGL ([hexgl.bkcore.com](http://hexgl.bkcore.com)) are indistinguishable from proper apps. Chrome (and Firefox OS) is optimised for this HTML5 future.



### CAN... run on cheap hardware

By outsourcing number-crunching and file storage to cloud servers, Chrome OS can run on low-voltage mobile chips in devices with long battery life, and performance can be improved without the need to buy new hardware.



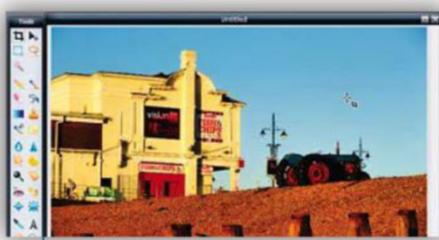
### CAN'T... cope without being online

You can work offline (see bottom of the page), but the Pixel really needs to be online and with a good connection to avoid constant pauses as it auto-saves. And at current network speeds, uploading large files can make even simple jobs a pain.



### CAN'T... run your favourite apps

Sadly, the HTML5 future is taking its time arriving, and the Chrome Web Store has very little to offer beyond ports of smartphone games you've played 100 times before. Worse still, we found many apps just didn't work on the Pixel.



### CAN'T... justify expensive hardware

A powerful CPU, graphics and a stack of RAM aren't there to keep your lap warm. So why, when Chrome's apps demand a reduction in speed, usability, productivity and choice, would you still pay a premium for high-spec hardware?

## ALSO CONSIDER...

### Apple MacBook Air

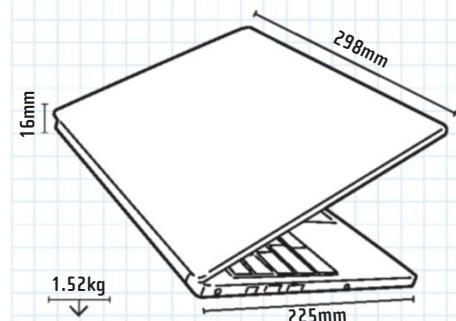
from £850 | [apple.com/uk](http://apple.com/uk)

With the Chrome browser installed, the MacBook Air can do almost everything the Pixel can plus much more. There's no touchscreen but it's cheaper and can run powerful productivity and creative apps without online restrictions.

**Stuff says ★★★★**



## TECH SPECS: CHROMEBOOK PIXEL



**Display** 12.85in, 2560x1700 touchscreen

**OS** Google Chrome OS

**CPU** Intel Dual Core i5 @ 1.86Hz

**Graphics** Integrated Intel HD 4000

**RAM** 4GB

**Storage** 32GB SSD + 1TB of Google Drive cloud storage for 3 years

**Connectivity** 3.5mm headphone out, Bluetooth 3.0, dual-band Wi-Fi a/b/g/n, SD card reader, USB2.0 (x2)

**Battery life** 5hrs

## STUFF SAYS

★★★★★

Team stunningly desirable hardware with a budget OS and you get... a mixed bag that can't justify this high price

## WHAT WORKS OFFLINE?

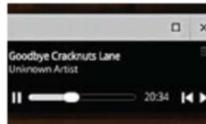
### Google Docs

Your Google Docs are automatically downloaded to the Pixel, allowing you to work in offline mode when you have no connection. Changes are then synced when you next get online.



### Music and video playing

MP3 music and certain video files can be played from the Pixel's local storage or a memory card, via the very basic inbuilt media apps. But format support is sketchy, especially for video files.



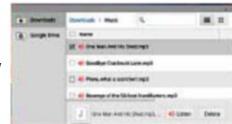
### Some games and apps

Most HTML5 sites/apps can be downloaded and run offline, and the Chrome Web Store includes an Offline category. Our experience, however, was that some worked and some didn't.



### File management

You can download files to the Pixel and move them around locally, but beware: 'Downloaded files may be automatically deleted if your Chrome device is running low on space.' Eek!



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## TOP 10 SMARTPHONES

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### HTC One £510

[htc.com/uk](http://htc.com/uk)

HTC's days of being overshadowed by the likes of Samsung and Sony are officially over: the One is better than the best offered by either of those rivals. Even the S4 is going to have its work cut out when it arrives, as this HTC is a masterclass in smartphone craft, from its impossibly clear 1080p screen to its engineered looks and strokable machined aluminium body. The Sense 5 skin for Android is a pleasure, too, delivering great-looking, personalised content in a nod to the best bits of Windows Phone 8, while the UltraPixel camera is ideal for everyday, point-and-shoot pics.

**KILLER FEATURE** Zoe mode captures extra snaps so you can pick the best frame



### Sony Xperia Z £500 ★★★★☆

You've got to feel for the Xperia Z – just two months at the top and it's already been demoted to second place. Still, while it loses the ergonomic and screen-res fights with the HTC, Sony's 5in-screened flagship remains a gorgeously monolithic slab of a smartphone.



### Samsung Galaxy S III £390 ★★★★☆

The S III's long reign at the top of this list is over, but its 1.4GHz quad-core processor and Android Jelly Bean smarts ensure it's still a fantastic phone. We also prefer its camera to the Xperia Z's, while its 4.8in screen might please the (slightly) smaller handed.



### Google Nexus 4 £240 ★★★★☆

Our champion 'budget smartphone' is finally in stock on Google Play. Get down there sharpish, because the Nexus 4 is astonishing value. It runs vanilla Jelly Bean, packs a lovely 320ppi screen and is getting more accessories than any other Android bar the Galaxy S III.



### Apple iPhone 5 £530 ★★★★☆

It's got the best app store, the subtlest design and still offers the smoothest smartphone experience out there, but iOS is looking increasingly dated next to Android, and the technical superiority of flagship rivals means the iPhone 5 drops a spot.



### Samsung Galaxy Note II £480 ★★★★☆

Its 5.5in 720p screen might be too much for most of us to get to grips with but the Note II's supreme power, handy S Pen stylus and features such as Popup Browser and Multiscreen will be exactly what some gadgeteers want. The time for mainstream phablets is here.



### Blackberry Z10 £490 ★★★★☆

Solid, with a detailed 4.2in, 1280x768 screen and an 8MP cam, but the Z10's real draw is the new BB10 OS. Its gesture-heavy navigation takes time to master but works well, the smart keyboard is one of the best we've used and BB Hub is a one-stop message shop.



### Nokia Lumia 920 £500 ★★★★☆

It's a photo finish, but Nokia's flagship edges HTC's 8X as our favourite Windows Phone. The two share the same dual-core processor, but the 920's superior 4.5in screen and battery give it this little victory. It needs more apps to take on Android and iOS though.



### Huawei Ascend P1 £230 ★★★★☆

The P1's successor, the cleverly-named P2, will be arriving in summer 2013 for a SIM-free price of €399 (UK price £tba). It'll pack a larger 4.7in screen, 16GB storage and the potential for extra-fast 4G speeds thanks to a next-gen LTE chip. Full review soon.



### HTC 8X £385 ★★★★☆

The 8X takes the title of 'world's best-looking phone' and positively glows in its blue, red and yellow hues – as does its gorgeous 4.3in, sharper-than-Retina LCD display. The dual-core chip performs well too, but a thin apps catalogue loses it a crucial star.

## STUFF SAYS ★★★★☆

Super-stylish, ultra-smart and a pleasure to use, the HTC One is a masterclass in smartphone design

**Mark Wilson** Smart tart

[mark@stuff.tv](mailto:mark@stuff.tv)

Batteries are only just evolving fast enough to cope with the crazy demands our smartphones place on them. Giant Androids such as Huawei's 5in Ascend D2 need a massive 3000mAh battery just to get through the day. Even then, you'll need a nightly charge – but not for much longer. The **YotaPhone** (£tba, [yotaphone.com](http://yotaphone.com), see p38) packs a second E-ink screen on the back, the idea being that you swipe reading material to it from the front LCD to conserve power; it will supposedly last for a week on one charge. Meanwhile, **ETA Devices** ([etadevices.com](http://etadevices.com)) has come up with new power amplifiers for phones and base stations that will reduce heat waste by 90% and double your phone's battery life. The tech is expected to launch in late 2013 – just in time for the iPhone 6, then...



// Your phone's battery life could be about to get a lot better"

**1 Operating system** Apple's iOS has the edge on simplicity and apps, while Android is better for live widgets and personalisation. But the two new dark horses, Windows Phone 8 and BlackBerry 10, are making big strides in OS design and usability.

**2 Screen** Bigger might seem better for screen size, but the small-handed might want to try before they buy. Standard res is 800x480, but these phones wouldn't be seen dead with less than 720p. Full 1080p phones are also emerging.

**3 Apps** The iTunes App Store is still marginally ahead, but Google's Play Store isn't far behind.

#### Dialaphone Top Tip Capture the moment

Basic smartphones will pack at least a 5MP camera, but if you take photography seriously then the likes of the HTC One, Sony Xperia Z and BlackBerry Z10 all offer the latest tech and real image-capturing clout.

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## WHAT TO LOOK FOR

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The Smart Choice for the Smartphone

# Xperia™ Z

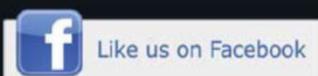
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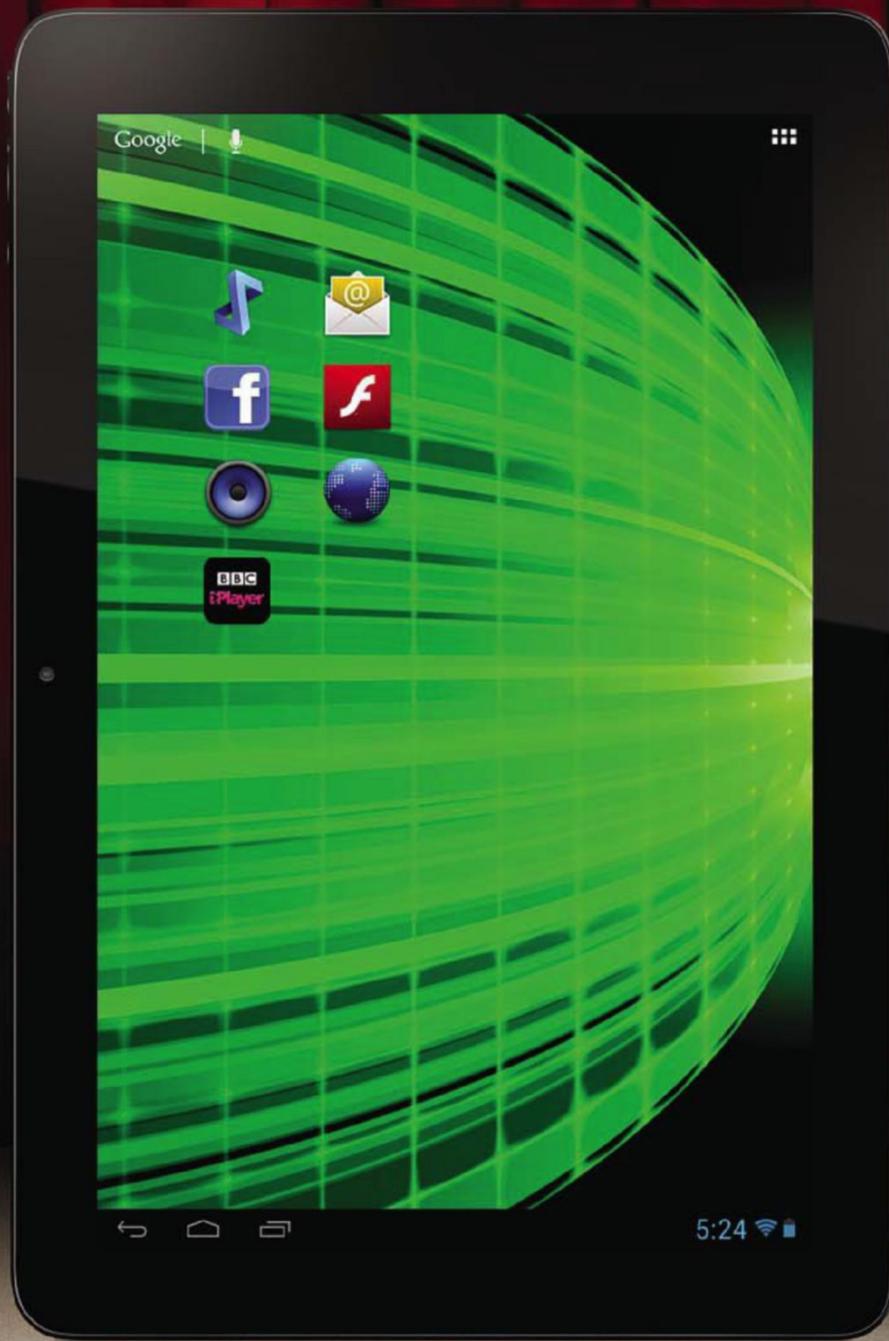


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## The Film Buff

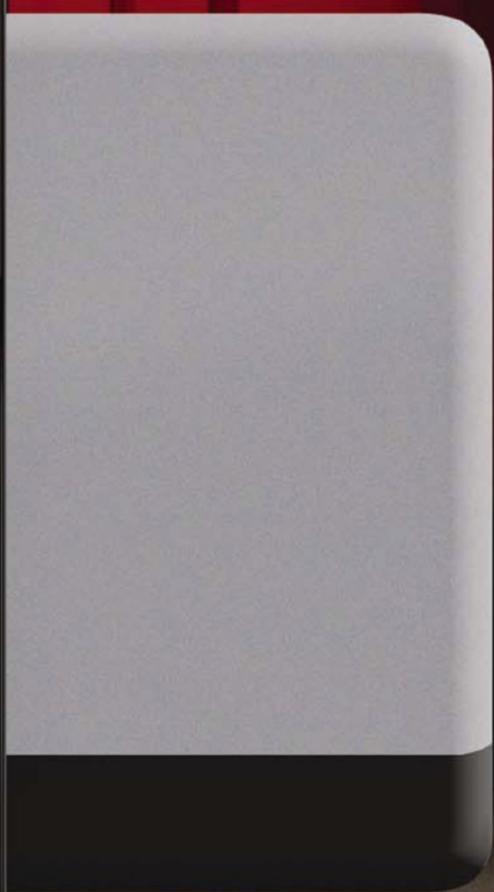
*The TouchTab 10.1 is perfect for watching films and playing games*



### TOUCHTAB DUAL CORE

Jelly Bean 4.1, Dual Core Processor, a micro SD card expansion slot, HDMI out to watch films or play the latest games on your TV. There's something for everyone in the **TouchTab Collection**.

From £119.99 at: **maplin**



**Quad Core**  
Graphics



**10.1"**  
SCREEN



**16GB**  
STORAGE  
+ SD CARD SLOT



The TouchTab Collection also features **The Socialite** (7" Screen), **The Apprentice** (8" Screen) and **The Entrepreneur** (9.7" PixelBright™ Screen). Below are examples of some of their amazing features:



Flash Player



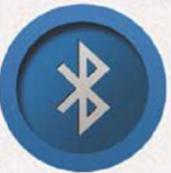
Dual Core CPU



IPS Display



Jelly Bean 4.1



Bluetooth



HDMI



micro SD Card Slot



Stuff  
HOT BUY

1

**Apple iPad (4th generation) from £385**[apple.com/uk](http://apple.com/uk)

Just a few months after the last iPad, Apple has snuck out a quiet upgrade to its superslate. It still stands above all others, with an amazing screen that renders everything in glorious 2048x1536 on its 9.7in Retina display. Photos, games and movies look incredible and text is eggshell-smooth. Quad-core graphics make it slicker and more user-friendly than ever, and the unparalleled riches of the App Store, mean it's still the most fun, too. Yes, iOS is due a refresh, but it's less of an issue here than on the iPhone. What does the upgrade get you? A Lightning port, LTE speeds (EE only), a twice-as-fast A6X chip and a 1.2MP front cam.

**KILLER FEATURE** Did we mention the screen? It really is a bit special

2

**Google Nexus 7 from £160 ★★★★☆**

The Asus-built, Android Jelly Bean-running Nexus is simply astonishing value. A passable 7in HD IPS screen sits in front of a mighty Tegra 3 processor, making it brilliant for gaming, but there are also next-gen toys such as NFC and the all-seeing Google Now to play with.

3

**Apple iPad Mini from £270 ★★★★☆**

A stunning finish makes this the prettiest Apple tablet yet. The 7.9in screen shares the 1024x768 res of the iPad 2, but it's not as crisp as the Nexus 7 or Kindle Fire HD. Excellent apps push it out in front – but at £110 more than the Nexus 7, it's hard to recommend to all.

4

**Asus Transformer Pad Infinity £550 (w/keyboard dock) ★★★★☆**

Don't underestimate the keyboard dock. The Infinity uses it not just for its trackpad and keys, but also for connections and extra battery life. Along with quad-core power, it makes this full-HD-screener a netbook beater. The Prime is about £150 less and is also brilliant.

5

**Google Nexus 10 from £320 ★★★★☆**

It doesn't feel quite as premium as the iPad, but the Nexus 10's 2560x1600, 300ppi screen is the sharpest we've seen on an Android tablet. With a dual-core 1.7GHz chip, solid battery life and speedy MIMO Wi-Fi, this Jelly Bean slate is a solid contender.

6

**Sony Xperia Tablet S from £315 ★★★★☆**

Sexier, faster and skinnier than the Tablet S before it, this 1280x800 quad-core slate has a magazine-style fold for easy gripping. At 570g the solid aluminium build is lighter than the iPad, and DLNA skills and an IR blaster make it the perfect living-room slate.

7

**Samsung Galaxy Note 10.1 from £365 ★★★★☆**

This 10in tab has an IR blaster, can run certain apps side-by-side – albeit slowly – and comes with the S Pen, a super-precise stylus with loads of optimised apps. A shame that its screen is just 1280x800. A recent update gives it Android 4.1 Jelly Bean.

8

**Microsoft Surface with Windows RT from £400 ★★★★☆**

The pared-down Win RT hits the funky, chunky 10.6in Surface. Its 16:9 screen is a mere 1366x768, but images look good, graphics are smooth and battery life is excellent – as are the Touch and Type keyboard covers. Win 8 is fresh, but a lack of apps limits it – for now.

9

**Amazon Kindle Fire HD from £160 ★★★★☆**

The Fire HD may have a big bezel but that 7in, 1280x800 screen has punch. It's also fast and has great speakers, making it a top tablet for films, ebooks and all-round media consumption – so long as you don't mind the lack of apps and closed Amazon ecosystem.

10

**Dell XPS 10 from £480 (w/ keyboard dock) ★★★★☆**

The XPS 10 has a 10.1in, 1366x768 screen to rival the Surface RT at No.8. As with most Dells the vibe it exudes is more business than pleasure, so while Win 8 RT is smooth and there are plenty of media options, you'll get on better with it if you're a suity type.

NEW

INSTANT EXPERT

**Will Findlater** etches his commandments will@stuff.tv

Self-driving cars are inching themselves ever closer, and pretty soon a tablet is all you'll need to turn your motor into one. Alright, that's not quite true – but the driven engineers at Oxford University's **RobotCar** project ([robotcar.org.uk](http://robotcar.org.uk)) are working on it. They've bedecked a Nissan Leaf electric car with about £5000-worth of cameras and 3D mapping lasers, which hook up to a computer and then to your iPad. When it recognises a bit of road, your tablet will ask if you want the car to take over, and you'll be effortlessly wafted to your destination. It's still in the prototype stages, but those self-driving wizards are aiming to get the price tag down to an amazing £100 per system. Plus the tablet, of course. And an iPad is never going to be cheap.



// The self-driving car of the future will be based around an iPad"

WHAT TO LOOK FOR

**1 Operating system** Determines the interface, what it's compatible with and how many apps are available. iOS 6 is reliable and app-stuffed, but aging; Android is solid; and Windows 8 gives the PC experience. Win 8 RT only runs Windows Store apps, while standard Win 8 tabs are like full-on PCs.

**2 Processor** These days there's not much between the processors on offer. Nvidia's quad-core Tegra 3 rules the roost, but Apple's dual-core A6X is just as speedy and Qualcomm's Snapdragon S4 chips are good for most tasks.

**3 Size** Screen dimensions and aspect ratios affect video cropping and how each device feels to hold, so try before you buy. Bigger is better for productivity, 7in is perfect for media.

**4 Connectivity** Wi-Fi and Bluetooth usually come as standard; useful sockets such as HDMI and SD do not. 3G can prove pricey.

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## TOP 10 SMARTPHONE APPS

1  
2  
3  
4  
5  
6  
7  
8  
9  
10



### Angry Birds Star Wars

from £free

A long time ago in a galaxy not far away, Angry Birds took the world by storm. The world swiftly got bored of our furious feathered friends but this Star Wars tie-in breathes new life into the series, with a mixture of gameplay styles, smart level design and the kind of attention to detail that'll have Han-shot-first geeks grinning into their replica Stormtrooper helmets.

**Stuff says ★★★★**

The best Angry Birds ever, like an aviary gone apoplectic

iPh An WP RT



### Spotify Premium £free + £9.99/month ★★★★

iPh An BB WP

Music streaming service Spotify has an app for every platform out there, and it's great on each one of them. It now also runs natively on iPad and Android tablets, and adds social features and related artist links for the first time on mobile. Good work.



### Onavo Extend £free ★★★★

iPh An

If you're pushing the limits of your data tariff or travel abroad regularly, Onavo is a real moneysaver, crunching down the data you use for apps, email and web browsing. The app runs in the background, but has stats to show your savings.



### New Star Soccer from £free ★★★★

iPh An

Like a cross between Angry Birds and Football Manager Handheld, the ultra-addictive New Star Soccer puts you in the boots of an up-and-coming footballer. The latest update adds corner kicks and the ability to buy your own racehorses. How very Fergie.



### Swype £free ★★★★

An

Text-entry app Swype tends to get Android users evangelising, not least because it's not available on iPhone yet. It lets you type by swiping your finger around a keyboard rather than tapping individual keys. It's fast, effective, and available as a free beta.



### Google Maps for iOS £free ★★★★

iPh

An essential download for iDevices, the new Google Maps rights the wrongs wrought by the calamitous Apple Maps. Plus, it's a fair bit better than the old GMaps ever was on iOS, being a more fully featured offering that's on a par with the Android versions.



### Songkick Concerts £free ★★★★

iPh An

Now also available on Android, music site Songkick's app might be free, but it's going to cost you a lot of money. It scans your music library, then tells you which bands in your collection have gigs coming up near you. Handy push notifications alert you to new gigs.



### Tweetbot £1.99 ★★★★

iPh

The official Twitter app is good, but a growing number of people think Tweetbot is better. Why? Well, it makes it easy to follow tweets from specific lists of people, swipe between conversation threads, and generally make sense of your tweetstream.



### Sky Go from £free ★★★★

iPh An

Sky's subscription-only mobile TV app keeps going from strength to strength, with an Android version now available on 24 popular phones (and the Nexus 7) plus a new Sky Go Extra service that offers movie downloads for an extra £5/month.



### WhatsApp Messenger from £free ★★★★

iPh An BB WP

WhatsApp is the king of multiplatform mobile messaging. You can message individual friends or hold group chats, with photo and video sharing too – all free over your data connection. App is free on Android, free for 1st year on WP and £0.69 on iOS.

I COULDN'T LIVE WITHOUT...

### Tapatalk HD from £2.49

Stephen Graves, online deputy editor

Ah, internet forums – those talking shops full of trolls and secondhand memes are still going strong after all these years. And, er, I'm still frequenting them. So I'd like to give thanks for the Tapatalk HD app for Android tablets. Like the phone version, it lets you log into multiple Tapatalk-enabled forums with a single account, serves up push notifications and follows participated threads. The HD version adds a gallery view, collecting together images from across your forums. As the proud owner of an Asus Transformer Prime, I can take advantage of all that screen real estate, which comes in handy when I'm out trolling. Er, I mean, "correcting mistakes online".



**// Tapatalk HD helps me feed my addiction to internet forums"**

### KEY

iPh iPhone  
iPa iPad  
An Android  
BB BlackBerry  
WP WinPhone  
RT Windows RT

**Any app with an iPhone symbol beside it will also run on iPod Touch and iPad, but not natively on iPad. You'll need the iPad symbol for that. Windows RT is the tablet version of Win 8, and any apps on the Windows Store will run on both Windows 8 and RT slates.**

NEWS

DJs might be the kings of #firstworldproblems (Don't believe us? Check out [twitter.com/DJsComplaining](#)), but really they don't have a bad life. For starters, they've got this new Traktor DJ app (£13.99, [native-instruments.com](#)) for their iPads. Built by the same people who make the full laptop software, it ditches the digital turntables of other DJ apps for waveforms and gestures, allowing you to loop and mix songs stored on your iPad. 'Freeze' mode even stops the waveform and chops it into beats, allowing you to remix on the go. And if you also use Traktor Pro DJ on your laptop, you can prepare tempos and cue points on the iPad, and sync them to your PC via Dropbox. So, Mr DJ, why don't you stop moaning...

**Stuff**

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**Tom Wiggins** 'appy shopper  
tomw@stuff.tv

Angry Birds might now rule the world, but it wouldn't exist at all without the hard graft of its gaming forefathers. Many of these have found a new life on mobiles; here's our pick of them.

**1 Alien Breed**  
from £2.99

Already a hit on iOS but newly available on Android devices, Team17's classic plays like a top-down cross between Ridley Scott's *Alien* and *The Raid*, run in reverse. Find your way to the lift on each level to make your way out.



An iPh iPa

**2 Snake '97 Free**  
£free

Back in '97 your phone didn't need 4G or a fancy camera to make you the envy of the pub. No – all it needed was *Snake*. This app is complete with keypad and green screen, though it might not impress down the pub any more.



An iPh iRa

**3 R-Type**  
£1.85

Side-scrolling space shooters were as common as white dog poo in the late '80s, but much like that phenomena they've all but disappeared today. *R-Type* was one of the best: fiendishly difficult but packed with awesome power-ups.



An

**4 Another World**  
from £2.49

This 20th anniversary remake of the Amiga classic comes with fully remastered sound and allows you to switch between the original and newly spruced-up HD graphics, as you run around on a quest to escape an alien planet. Good luck.



An iPh iPa

**5 Streets of Rage 2**  
£0.69

The finest of the three *Streets of Rage* games (at least in our nostalgia-stained memories), this iPhone port even includes multiplayer co-op via Bluetooth. Disagree? The other two in the trilogy are also available for £0.69 each.



iPh

## TOP 10 TABLET APPS

### BBC iPlayer

£free

iPa An

The Beeb's excellent app for iPad and Android just got even better. Shows can now be downloaded (over Wi-Fi), so you can get your TV fix on holiday, on the Tube or on a plane – or simply avoid using your 3G data allowance. Once downloaded, programmes can be kept for 30 days. It's iOS-only for now, but Android fans shouldn't have to wait long for the update. Brilliant.

**Stuff says** ★★★★☆

The Beeb's riches on a tablet, for free. Utterly essential



1



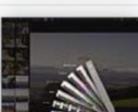
**The Walking Dead** from £free

★★★★★

iPa

This zombie thriller is part interactive comic, part point-and-click adventure, part illustrated guide to intestines. It's also wholly brilliant, especially for fans of the superb TV show/ comic. Episode 1 is free, but be warned: you'll want to play all 5, and that'll cost you £10.49.

2



**iPhoto** £2.99

★★★★★

iPa

If you'd told us you enjoy photo editing before we tried iPhoto, we'd have considered you a bit strange. But brushing in fixes, tints, enhancements and effects with a fingertip is truly joyful, and creating collage 'Journals' for yourself and friends is addictive. Powerful and fun.

3



**Carmageddon** £1.49

★★★★★

iPa

While we await the arrival of *Carmageddon: Reincarnation* this iPad version of the PC original is more than enough. Superbly ported to the touchscreen, it's got everything that made the first version so great: speed, stunts, blood and power-ups.

4



**Pocket** £free

★★★★★

iPa An

Pocket is one of those apps that you'll wonder how you ever managed without. Whenever you find an interesting link online, send it to Pocket and it'll be saved offline to be read later. Just make sure you've got plenty of time set aside for catching up.

5



**Grand Theft Auto: Vice City** from £2.99

★★★★★

iPa An

After the success of *GTA III* (download that right now, if you haven't already) Rockstar has ported its excellent *Miami Vice*/Scarfie-inspired crime 'em up to iOS and Android. Touchscreen controls aren't perfect but the rest (especially the soundtrack) isn't far off.

6



**GarageBand** £2.99

★★★★★

iPa

Apple's music creation app for iPad works on two levels. Half-decent musicians can use it as a serious recording tool, even plugging their guitar in to the iPad. The rest of us can play around with its virtual instruments while it cleverly makes us sound good.

7



**Sky Sports** from £5/month

★★★★★

iPa

Sky Sports' tablet app is a one stop shop for sports news and runs a live feed of the TV channel as well. Sky subscribers get the app for free and plenty more goodies, now with live Premier League match and player stats to make you feel like a sofa-ridden Gary Neville.

8



**Spotify** £free + £9.99/month

★★★★★

iPa An

While not quite as essential as the iPhone version, Spotify's iPad and Android tablet offering is everything you'd expect from the number one music streaming service, with bonus points awarded for including the desktop version's social features.

9



**Flipboard** £free

★★★★★

iPa

Ever wished Twitter and Facebook were a bit more... magazine-y? Flipboard makes them exactly that, aggregating and presenting your online social life in a flippable virtual mag, with the ability to pull in news stories from your favourite sites, too.

10



**Hands Off, Son**

£free

An

★★★★★

We build seven glue-and-screw kits that are just too cool for kids

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**Stuff  
HOT  
BUY****Sonos multiroom system from £500**[sonos.com](http://sonos.com)

Who needs to drill holes and re-plaster walls to get a multiroom music system? Not you. With Sonos, you can expand your set-up at your leisure – why not start with a budget Play:3, and add a bigger Play:5 later? Then maybe hook up a Connect to your existing hi-fi and router. Then add speakers to a Connect:Amp in another room, or get a Sub for a bass boost. You'll run out of rooms before you run out of options. And if you want to give the already impressive sound an upgrade, the new Arcam rSeries SonLink DAC (£185, [arcam.co.uk](http://arcam.co.uk)) is designed specifically to work with the Connect.

**KILLER FEATURE** Zoneplayers can all sync for 'party mode' or play individually**STUFF SAYS** ★★★★☆

Infinite music in every room without the need for custom installers?  
Sign us up now

**1****Cambridge Audio Stream Magic 6 £600** ★★★★☆

Our favourite music streamer is only kept from the top spot by the brilliant flexibility of the full Sonos system; as a single player, we'd go for this every time. Team it with the Azur 651A amp (£350), feed it high-resolution 24-bit tunes and you'll never look back.

**2****Naim Uniti 2 £2795** ★★★★☆

The new Naim is the best streamer we've heard – feed it music by USB, Wi-Fi, or even old-school CD, and it'll pay you back with a sound that's breathtaking in its clarity and precision. It's not cheap and lacks streaming services, but you won't care as soon as you hear it.

**3****JBL OnBeat Xtreme £240** ★★★★☆

Want to have your cake and eat it? Go for the OnBeat Xtreme. It's got an iThing dock, USB, Bluetooth streaming, built-in mic and video output. Plus it sounds great. Tasty. Got a new-fangled iThing with Lightning connector? Compatible models are out now.

**4****Onkyo CR-N755 £250** ★★★★☆

This Onkyo is about as cutting-edge as micro hi-fi gets, being the first with built-in access to Spotify and Last.fm. You can also stream your own tunes wirelessly or via USB, listen to FM or internet radio and even play CDs. Audio quality is equally impressive.

**5****Libratone Zipp £330** ★★★★☆

A fuzzy, cylindrical, colourful Airplay dock that will deliver detailed, punchy 360-degree sound anywhere at all, thanks to a built-in battery that gives it four hours of outdoors life. Direct Wi-Fi skills free you from cables, routers, and everything but the boogie.

**6****Philips Fidelio SoundSphere DS9800W £450** ★★★★☆

In a world awash with AirPlay-equipped docks, the SoundSpheres have created a niche for themselves by offering proper two-channel stereo output. Idiosyncratic looks ensure they'll stand out even further from the crowd, and they sound great too.

**7****B&W A7 £700** ★★★★☆

So farewell then, venerable Zeppelin. And hello there, A7 – an altogether subtler Airplay affair. Five drivers and a big woofer give it bags of spacious, room-filling sound, and the kind of dynamics 'proper' hi-fis wish they had. It sure doesn't come cheap, though.

**8****Focal XS Book £250** ★★★★☆

Can a computer ever be a proper hi-fi substitute? It can if kitted out with these premium 40W desktop speakers. If the new wireless version (due May, see Instant Expert) doesn't interest you, you might well see a nice price drop on the old model.

**9****Logitech Mini Boombox £50** ★★★★☆

Travelling light? The Mini Boombox is so small it'll fit in your pocket, but still pumps out a superb sound for the price, whether your tunes are streamed over Bluetooth or played via its 3.5mm line-in. The perfect accessory for all your summer picnics.

**10****INSTANT EXPERT****Marc McLaren** lives life in stereo[marc@stuff.tv](mailto:marc@stuff.tv)

**Focal's XS Book** speakers have sat in this Top 10 for over a year now, on account of their being the best-value audio upgrade you could give your PC. But in a world where most new PCs come with wireless peripherals, and given that the rest of this list consists of stream-friendly AirPlay and Bluetooth boxes, they're beginning to look a tad old-fashioned. Enter the **Focal XS Book Wireless** (£260, due May, [focal.com/en](http://focal.com/en)). The name may be cryptic and confusing, but yes – we can confirm these are indeed wireless versions of the old Books. They'll use aptX Bluetooth to do their thing, so they'll be compatible with most newish phones and tablets, as well as PCs and laptops. Not much else about them has changed – but going wire-free is enough for us.



// The Focal XS Book Wireless use aptX Bluetooth to stream audio"

**WHAT TO LOOK FOR**

**1 Spread 'em** As proven by the Naim, left, mini doesn't have to mean manky. Spreading the speakers out will help sound quality and adding a subwoofer can be a good move.

**2 Boxes of tricks** Look for as many features as you can get for your money: demand DAB, decent build quality and aux-in sockets for your PMP, plus HDMI if you want TV connectivity, and DLNA, AirPlay or UPnP music streaming tech.

**3 Ugly duckling?** No matter how well-specced a mini system is, it still needs to fit with the decor of the room it's going in. There are plenty of lookers out there, so don't settle for a minger.

**4 Stream team** Most hi-fi systems are network-ready these days, but to take advantage of their streaming skills you'll need a server – whether PC or NAS drive – and a good Wi-Fi set-up. Going wired can be a better bet in houses with thick walls.



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You don't necessarily know who's behind selling a car when you buy online. You also need to be assured that what they say they are selling and what they are selling are the same thing. Buying from **Trusted Dealers** is the safest and most reliable way to buy a used car online. Owned by its members with hundreds of **franchised dealerships across the UK**, we can offer standards that other classified websites can't guarantee and that's why **What Car?** endorse our Ten Points of Difference.



Don't just buy from anyone. Search for trusted dealers.



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## TOP 10 ▶ VIDEO STREAMING

Read full reviews of all the gadgets in our Top 10s at [www.stuff.tv](http://www.stuff.tv)

Stuff  
HOT BUY

### Sony SMP-N200 £100

[sony.co.uk](http://sony.co.uk)

The death of D-Link's Boxee Box may have promoted the SMP-N200 to the top spot automatically, but that doesn't make it any less deserving. It's got all of the worthwhile TV and movie services onboard, including iPlayer and Lovefilm, as well as Sony's own Video Unlimited, which thanks to its excellent catalogue of films and brilliant HD quality is second only to iTunes in the on-demand movie stakes. It's not quite as capable with your own files (MKV and ISO support is missing), but considering how much internet content it has – as well as that brilliantly affordable price – it's our streamer of choice, on merit alone.

**KILLER FEATURE** Streaming 1080p films and TV from Video Unlimited



### Microsoft Xbox 360 from £130 ★★★★☆

Like Sony, Microsoft has repositioned its console as an all-in-one entertainment device. To that end it's now got reasonable file streaming, Sky (live and On Demand), Lovefilm (now in HD), Netflix, iPlayer, and 1080p on-demand movies from Zune.



### Sony PlayStation 3 from £160 ★★★★☆

As well as being a superb games machine and respectable Blu-ray player, the PS3 is also a great streamer. It doesn't support all formats but it's not far off and it's got abundant web content. Limited-edition blue and red variants are out now for £250.



### Apple TV £80 ★★★★☆

The new Apple TV may not have made as many headlines as the new iPad, but with 1080p streaming and iCloud skills now on board, it's exciting enough to warrant a mention. Combine it with an iOS device and it's a neat, dual-screen games machine.



### Western Digital WD TV Live £75 ★★★★☆

Already superb value at the official price of £110, the WD TV Live can be had for a steal if you shop around. It lacks the HDD of the Live Hub at No.8, but it has awesome format support for your own files and now boasts AcetraX alongside Netflix, iPlayer and Spotify.



### Sony NSZ-GS7 £130 ★★★★☆

Sony's new streamer has an ace up its sleeve: Google TV. It's got a Chrome browser (navigable via the trackpad-and-keyboard remote) as well as an app store, and while said store's actually a little bit sparse right now, we expect it'll only get better.



### Popcorn Hour A-300 £190 ★★★★☆

Yes, we know it's got all of the aesthetic appeal of a particularly dull brick, but the Popcorn Hour A-300 is something of a cult favourite in streaming circles, thanks to its unrivalled format support, mass of connections and hard drive bay.



### Western Digital WD TV Live Hub £140 ★★★★☆

Maximising a video streamer usually involves partnering it with NAS, but thanks to a built-in 1TB drive, the WD TV Live Hub is both. It's compact and quiet, and at under £200 a bargain, especially as it now has on-demand video from iPlayer and AcetraX.



### Iomega TV with Boxee + Network Storage from £180 ★★★★☆

A unit that combines Boxee's brilliant features and interface with an HDD for local storage sounds like the streaming Holy Grail, but with a weaker remote and its lack of apps, it's not quite there – at least not yet. Stock is thin on the ground right now, too.



### Roku LT £50 ★★★★☆

This diminutive box makes for a very affordable, very simple way to add catch-up TV, on-demand movies and music to an otherwise dumb TV. With Spotify the latest addition to a line-up that also includes Sky's Now TV and Netflix, that £50 goes a long way.

## STUFF SAYS ★★★★☆

With the best selection of web content around, this will make almost any TV a good deal smarter

**Tom Parsons** Vanilla ISO

[tomp@stuff.tv](mailto:tomp@stuff.tv)

We might all want a NAS device full of movies and a media streamer to play them on, but what if you've already got a USB hard drive stuffed with content that you simply want to get on your TV screen as cheaply and easily as possible? Then you could do a heck of a lot worse than buy the **Crystal Acoustics MediaMatchBox 2** (£55, [crystalaudiovideo.com](http://crystalaudiovideo.com)). This dinky little unit will read all of the content on your USB HDD or SD card and pump it out to your telly via HDMI with no fuss at all. It'll play almost any format, including MKV and Blu-ray ISOs, and will do so in HD with 5.1 surround sound. It's not going to set the world alight and the remote's rather rubbish, but in its own little niche this is a very handy little gadget.



// It's the easiest way to play your USB-stored media on your TV"

**1 Format mad** Fancy converting all of your tunes and movies? Us neither. So make sure the streamer you buy can play the formats you've got – whether AVI, MKV or more exotic fare.

**2 Web content** From Spotify to Lovefilm to Sony Entertainment Network, there are loads of services for streaming media from the net. Do your research, decide which you want, and buy a streamer that will bring them to you.

**3 Serving** Home streaming relies on having a server, normally a PC. If you want an always-on system, network-attached storage (NAS) drives make more serving sense, as they consume little power and can be configured to auto-backup all of your digital goodies.

**4 Wired or wireless?** Wires are a pain, but Wi-Fi isn't always up to the demands of streaming. Ethernet-over-mains products such as Devolo's dLAN make for a good alternative.

WHAT TO LOOK FOR

**CnM**  
**TOUCHPAD**  
**DUAL CORE**

7" 9" 10.1"

AVAILABLE IN THREE SCREEN SIZES



Jelly Bean 4.1, Dual Core Processor, a micro SD card expansion slot, HDMI out to watch films or play the latest games on your TV. There's something for everyone in the TouchPad Collection.

Only at Argos from: £119.99



# TOP 10 HEADPHONES

Read full reviews of all the gadgets in our Top 10s at [www.stuff.tv](http://www.stuff.tv)

Stuff  
HOT  
BUY



## Phonak Audéo PFE 012 £90

[audeoworld.com](http://audeoworld.com)

It's not easy creating the perfect headphones. Music is so subjective that one human's perfect pitch is a little lacking in bass for another, and too bright-sounding for pedant number three. The PFE 012s do about as good a job of satisfying disparate tastes as any in-ears we've tried. Building on the success of the pricier 111s, they dig up bags of detail, deliver sweet vocals and a palpable soundstage, and up the bass to party-worthy levels. They're also barely-there lightweight and subtly attractive. They could easily sell for twice the price.

**KILLER FEATURE** Their tiny 14g heft makes the 012s great for exercise

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## Bowers & Wilkins P3 £170 ★★★★☆

Superb sound and a very solid and achingly stylish design make these the best portable on-ears around. The fact that two cables come in the box – one with a mic and remote for iPhones and one without – only sweetens the already candy floss-like deal.



## SoundMagic E10 £35 ★★★★☆

Look closely at the picture and you might notice a little weave in the E10's cable. Yes, these budget belters have been tweaked. The new cable is more durable and they now sound even better, with far greater weight – hence the promotion to position No.3.



## Sony XBA-4IP £240 ★★★★☆

These chunky in-ears have four drivers pumping exceptionally punchy, detailed sound into each of your gloriously spoilt lugholes, but despite the fairly hefty design they're surprisingly comfortable, too. They were £400 at launch, so £250 is a great deal.



## Sennheiser MM 450-X £200 ★★★★☆

With hi-fi quality aptX Bluetooth, noise-cancelling, great sound and a mic for use with smartphones, the awesomely portable MM 450-X cans might be the only pair of headphones you ever need. Now we're just hoping the next iPhone has aptX built in.



## Klipsch Image X10i £130 ★★★★☆

A perennial favourite at Stuff Towers, these tiny, mic-toting buds sound superb and are more comfortable than they look. They launched at £230, so are something of a bargain now. Even the Lou Reed Signature Editions are now available for £140.



## PSB M4U2 £270 ★★★★☆

Yes, the M4U2s have got great noise-cancelling, but that's only half the story. Using the built-in amp produces a sound that's almost unbelievably punchy, clean and exciting. They might be a bit heavy, but that audio quality really is worth the weight.



## Sennheiser Momentum £260 ★★★★☆

Classily styled, cushion-comfortable and smooth-sounding, the Momentums are the perfect pair of on-ears for the dapper man about town. There's no noise-cancellation, but they do isolate nicely. While they don't fold down, there is a neat case included.



## Grado iGrado £50 ★★★★☆

The iGrados have been around a while but now they're back with a new driver, making them better than ever. Detail, punch and superb tonal balance are the selling points, but they're open-backed, so commuters beware – you'll be leaking sound all over the bus.



## Sennheiser CX 680i £45 ★★★★☆

Light, sweat-resistant and with a clever 'EarFin' to keep them in place, the CX 680i in-ears are the perfect partner for sporty music lovers. They sound impressive, too, and have an in-line mic. Try the PMX 680is (£50) if you'd prefer a neckband design.

## STUFF SAYS ★★★★☆

Fantastic sound, noise blocking and comfort at an excellent price. The perfect PMP upgrade

INSTANT EXPERT

**Tom Parsons** is deaf to criticism

[tomp@stuff.tv](mailto:tomp@stuff.tv)

Forget Beats by Dre, this is AKG by Tiesto. Not so catchy, eh? But the top-of-the-range **K267 Tiesto** (£329, [tiesto.akg.com](http://tiesto.akg.com)) pair I've got here are actually very good, and more than a match for anything I've heard from the Dre stable for ages. Tiesto, it transpires, is a DJ of rather awesome repute, so the K267s are appropriately geared towards DJing, with heavy-duty cables and construction, a folding design with twistable earcups, and three sound modes – Studio, Club and Stage. Studio produces the best, most natural results – direct, clear and punchy. They sound a little closed-in compared to the likes of the Sennheiser Momentums, so they aren't perfect everyday phones, but they're undeniably great DJ monitors.

**Stuff says** ★★★★☆



// These are more than a match for anything from the Dre stable"

WHAT TO LOOK FOR

**1 Anti-noise** Headphones dampen background kerfuffle in two ways: noise cancelling and sound isolating. The former uses powered electronics to monitor the outside world and generate a neutralising sound wave. It's normally integrated into comfy over-ear cans, great for long-haul travel. The latter creates a physical barrier, often in the form of tiny but invasive 'in-ear monitors' (IEMs), jammed into your lugs.

**2 Open day?** Open-backed cans let noise in (and out). The plus side is that they're less claustrophobic and have a pleasing, airy sound.

**3 Drivers/armatures** These create the music.

**4 At the gym** Avoid in-line volume controls if you're working out, as they bounce around. Look for lightweight, water-resistant designs.

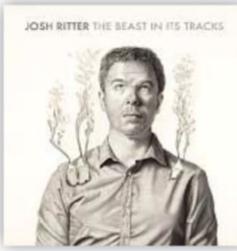
## OUR PICK

## NEW MUSIC



### David Bowie The Next Day ★★★★☆

First, the bad news: this is no *Hunky Dory*, or *Low*, or, indeed, *Heroes*. But the good news is it's also no *Earthling*. What it is, is a mostly good, sometimes great album that doesn't try too hard to sound contemporary and is all the better for it. He is 66, after all.



### Josh Ritter The Beast In Its Tracks ★★★★☆

Written in the wake of his divorce and shot through with searing honesty, unashamed nostalgia and no little dignity, Josh Ritter's seventh album is a masterpiece of confessional songwriting. We'll call it his *Blood On The Tracks*. Hyperbole intended.



### Phosphorescent Muchacho ★★★★☆

If Matthew 'Phosphorescent' Houck's 2010 album *Here's To Taking It Easy* was a modern country classic, his synth-laden follow-up could be termed 'countrytronica'. It's experimental, expansive and personal all at once, and often stunningly good with it.



### Devendra Banhart Mala ★★★★☆

There's no way you could ever fail to recognise a Devendra Banhart album; his tremulous warble and playful way with words are just too distinctive. So, *Mala* slinks along in its freaky-folky kind of way, Devendra does his thing and all is well.

# TOP 10 BLU-RAY PLAYERS

Read full reviews of all the gadgets in our Top 10s at [www.stuff.tv](http://www.stuff.tv)

## Sony BDP-S790 £200

[sony.co.uk](http://sony.co.uk)



Even by the spec-laden standards of the modern Blu-ray market, the BDP-S790 is remarkable. Video upscaling is its trump card: unlike any price rival, it can scale up to 4096x2160 resolution. True, only a few suitable screens and projectors are available as yet, so it's not necessarily an essential feature, but it's still reassuring from a long-term perspective. To cap things off, the Sony possesses fine sound, wonderful picture quality on both 2D and 3D content, and a slick remote app, menu system and streaming features. The Blu-ray gauntlet has well and truly been thrown down.

**KILLER FEATURE** 4K-capable upscaling. Do you need it? Not yet. But is it cool? Hell yes

### STUFF SAYS



Exceptional performance and spec, slick to use and future-proof – no wonder it's our new Hot Buy

### Panasonic DMP-BDT500 £260 ★★★★☆



Flagship Blu-rays used to cost much more than this. The excellent Pana's picture and sound quality outstrips even the high standards set by its stablemates below. It also has two HDMI outputs, as well as multichannel analogue outs for older AV receivers.

### Pioneer BDP-450 £200 ★★★★☆



Ho-hum smart features and no Wi-Fi keep this Pioneer from the top of the pile, but where the real stuff – picture and sound quality – is concerned, it's got the measure of every player on this list bar Marantz's unearthly, unaffordable UD7007 at no.8.

### Panasonic DMP-BDT220 £125 ★★★★☆



It's not the most extravagantly specified Blu-ray player around (though Panasonic's remote-control app is a joy), but the BDT-220 has the sort of picture- and sound quality to make its price look like a misprint. And that's our favourite kind of mistake.

### Sony BDP-S390 £90 ★★★★☆



A basic, non-3D-capable Blu-ray player isn't that exciting, granted, but the BDP-S390's breathtaking picture, very decent sound and fine streaming give it plenty of appeal, as does its price. If you don't already own a Blu-ray player, you should now.

### Pioneer BDP-LX55 £280 ★★★★☆



With its upmarket build, high-performance upscaling and extensive spec, the new Pioneer is perfect for home cinema enthusiasts. Its streaming services need improvement, but we've no complaints about either picture or sound quality.

### Samsung BD-D8500 £290 ★★★★☆



Samsung's much-delayed combination deck includes both a twin-tuner Freeview HD PVR and a 3D Blu-ray player. Picture quality is great either way, while Samsung's Smart Hub portal provides you with a massive reserve of online entertainment to play with.

### Marantz UD7007 £630 ★★★★☆



Pricey like an Aston Martin is pricey and about as satisfying to own, this Marantz can play any disc you like, streams music at high-def resolutions and can withstand medium-sized earthquakes. If you really, really take movies and music seriously, this is your player.

### Sony PS3 Slim from £210 ★★★★☆



The latest version of Sony's überconsole is as flexible as ever, playing DVDs, Blu-rays and a wide selection of streamed media in both 2D and 3D. Quality's largely good, but we're not sold on its sliding, top-loading mechanism. Still, there's plenty of value here.

### Cambridge Audio Azur 752BD £800 ★★★★☆



At first glance that price-tag seems ridiculous, but your scepticism will last only as long as the time it takes to plug it in. In fact, its superb picture and sound quality, vast connectivity options and accomplished networking render it entirely reasonable.

### INSTANT EXPERT

**Will Findlater** Thinking Blu-tiful thoughts  
[will@stuff.tv](mailto:will@stuff.tv)

Nothing satisfies like buying the latest, most cutting-edge gadget available – but, if you can bear to, stay your hand. Manufacturers are locked into a one-year model-cycle with the likes of Blu-ray players and, while I'll admit I haven't yet seen a single 2013 BDP, if the mainstream players are a massive improvement over the outgoing 2012 models I'll eat my hat – and my shoes. So as long as you can bear the ignominy of buying last year's model, something such as **Panasonic's** cracking **DMP-BDT220** (already an authentic bargain) will be priced well down into double figures before much longer. Which turns a bargain into, well, an absolutely massive bargain. Worth considering.



**If 2013's Blu-ray players improve much on 2012's, I'll eat my hat"**

### WHAT TO LOOK FOR

**1 BD-Live and Profile 2.0** These will give you access to extra Blu-ray disc features via the internet, either wirelessly if the player has built-in Wi-Fi or through a wired Ethernet connection. Some players also offer access to streaming video providers such as BBC iPlayer and Lovefilm.

**2 HD audio** Make sure your player or AV amp can cope with hi-def audio formats. There are various flavours (including Dolby TrueHD and DTS-HD Master Audio, as well as uncompressed PCM), which will give you a much more immersive experience with a suitable sound system.

**3 3D** The most up-to-date players feature HDMI 1.4a and can output 3D video at 1080p quality. Whether you think you'll use it or not, it's worth having for the sake of future proofing.

**4 Decent cables** In a high-end AV system, there are gains to be had from buying a better HDMI cable. Make sure yours is rated for HDMI 1.4a.

### OUR PICK

### NEW BLU-RAY RELEASES



#### Seven Psychopaths ★★★★☆

An alcoholic and two dog thieves try to write a screenplay against a backdrop of murder and revenge. It's a little clumsy and clichéd at times, but the deliciously random script and its darkly comic tone ensure it's never less than refreshing and entertaining.



#### Killing Them Softly ★★☆☆☆

Brad Pitt plays a hitman in this neo-noir tale of gangsters and gambling. But stylish shots and occasionally snappy one-liners fail to balance the forgettable dialogue and the constant, unsubtle references to the economic crisis. It's contemporary, you see.



#### The Master ★★★★☆

A drunk and angry Joaquin Phoenix finds himself ensnared in the web of a cult led by an enigmatic Philip Seymour Hoffman. Powerful performances, a gripping plot and gorgeous cinematography add up to a fine film, though it loses steam in the third act.



#### The Hobbit: An Unexpected Journey ★★★★☆

A hobbit goes on an adventure so epic that it spans three lengthy films. It doesn't do much the Lord Of The Rings films didn't, but it does add a welcome dash of fun and despite the running time it rarely drags.

NEW

Stuff  
HOT BUY**Samsung UE55F8000 £2500**[samsung.com/uk](http://samsung.com/uk)

The world's best TV? No question. The 55in F8000 has the best picture, the smartest features, the biggest sound and the most innovative controls of any telly out there. With inky blacks and awesome amounts of detail, this is a TV you'll never tire of watching. Which is just as well, because there's plenty to watch on it: Freeview, Freesat and all the riches of the revamped Smart Hub, complete with Netflix, LoveFilm and iPlayer, among many others. Other highlights include the TiVo-style S-Recommendation tool and the multi-talented Touch remote, while it's all kept ticking along smoothly by a quad-core processor. Superb.

**KILLER FEATURE** The way S-Recommendation always knows what you want to watch

1 UPDATE

**Sony KDL-46HX853 £1200 ★★★★**

The best of 2012's TVs has been usurped from the No.1 spot by the first of 2013's sets, but don't let that put you off it. It's smart to look at and clever to live with, serving up a stunning picture, great sound and an array of on-demand and internet content.

2 UPDATE

**Panasonic TX-P50GT50 £920 ★★★★**

A close competitor to the Sony at No.1 – and if size matters to you, its larger 50in panel may help seal the deal in its favour. Exceptional picture performance and a strong spec are assets too, although the Sony's online features and styling are a shade slicker.

3 UPDATE

**LG 47LM960V £1400 ★★★★**

With seven pairs of 3D specs in the box – two of which allow for full-screen gaming – this passive 3D TV is great for social occasions. It's just been updated with the Game World portal, featuring 2D and 3D games – some playable with LG's Magic Remote.

4 UPDATE

**Sony KDL-32HX753 £520 ★★★★**

This 32in Sony's performance-orientated spec means you needn't compromise on spec just because you've opted for a smaller screen. It runs at 200Hz (240Hz in 3D mode) and comes with all the smart features of its larger stablemates.

5 UPDATE

**Panasonic TX-P50X50B £380 ★★★★**

Sure, you could concentrate on what you don't get – less than full HD, no Smart features, a minimum of connections – or you could fixate on a 50in plasma TV with great pictures loaded with subtle colour and fine detail – for under £400. Yummy.

6 UPDATE

**Toshiba 46YL863 £840 ★★★★**

With its innovative backlighting tech and considerable picture-processing ability, Toshiba's new telly is a performance powerhouse. It's also stylish, well equipped – 3D, DLNA and decent smart TV services are all included – and terrific value for money.

7 UPDATE

**LG 42LM660T £640 ★★★★**

Although not the most spectacular of 2012's TV debutantes, the LG's comprehensive spec and consistent performance make it great value. Its family-friendly passive 3D tech also helps, while it's recently been updated with the new Game World portal.

8 UPDATE

**Toshiba 55ZL2 £5000 ★★★★☆**

The price is a considerable obstacle, but it's hard not to be impressed by Tosh's 55in specs-free 3D TV. Its 3840x2160 screen looks spectacular with both upscaled Blu-ray and native-res images – if you can find any. The 3D works... so long as you don't move.

9 UPDATE

**Panasonic TX-L47DT50 £1150 ★★★★**

Panasonic is best known for its plasmas, but this LED set is worth a gander. You get fairly basic menus, but Viera Connect is excellent and Freeview HD and Freesat HD deliver stunning 3D, although specs cost £80. It just lacks a smidgen of detail and depth.

THIS MONTH IN...

2005 (Stuff issue 74)

**Samsung Duo Cam 6050i £660 ★★★★☆**

**Stuff said** "The Duo Cam feels like a Stone Age solution to a Space Age problem. It might be just a single unit, but inside it's a MiniDV camcorder with a 5MP digital stills camera slung underneath. Its only merit is that you get both options in one box."

**Dell Axim X50v £330 ★★★★**

**Stuff said** "Yes, it has flaws as a video device, but the X50v's picture is perfect, the Personal Information Management (PIM) is top-notch and the form of the device is ideal. All we need is direct recording and a hard disk – then we'd be happy."

**Apple Mac Mini from £340 ★★★★☆**

**Stuff said** "Apple's covetable lunchbox isn't revolutionary but it's an excellent new desktop with a peerless software bundle. A meagre spec means power users and gamers should avoid, but for Mac fans it's a digital hub with huge potential."

**STUFF SAYS** ★★★★

Start saving up now – the super-smart Samsung F8000 is the TV your eyes have been waiting for

INSTANT EXPERT

**Simon Osborne-Walker** Visionary

simon@stuff.tv

In this column last month I got all excited about curved OLED TVs, before dreaming of a future in which flexible tellies could be rolled up then hung like wallpaper. If only my dreams had involved winning both the lottery and Scarlett Johansson's heart – because the roll-up telly one has just come true. Well sort of. **Plastic Logic** ([plasticlogic.com](http://plasticlogic.com)), the company behind the flexible Papertab tablet, has announced a 42in flexible electrophoretic display (EPD) module, made up of 16 individual 10.7in monochrome plastic displays. Alright, so it's not a TV – an EPD is actually a form of electronic paper of the kind used in ebooks – but Plastic Logic has demonstrated video running on it, and at less than 3mm thick it could easily be hung on the wall. So a roll-up TV can't be far off, right? Now – anyone got ScarJo's number?



// Roll-up flexible televisions could soon be on the way after all"

WHAT TO LOOK FOR

**1 LCD or plasma?** LCD is edging closer to victory simply because it's so much cheaper to implement. Plasma-based TVs are pricier but technically superior, though you won't find full HD ones under 40 inches.

**2 Full HD** Screens described as 'full HD' support a shiny 1080p signal, although you can also get 4K resolutions at prohibitive prices. They all come with HDMI ports, allowing you to pipe full HD content from a Blu-ray player or games console. Aim for HDMI 1.4a, which supports auto switching to 3D modes.

**3 3D** There are two types: active shutter and passive (or polarising). Both require glasses; the former offers superior resolution.

**4 Extras** The scrabble for remote controls can be resolved with a classy universal wand – and don't skimp on cables, especially analogue ones. A decent HDMI is a necessity at over 2m.

**Roland G-70 £2300 ★★★★**

**Stuff said** "Jean Michel Jarre would go absolutely nuts for this. We're not Jarre, but we managed to produce a half-decent trance track. It's not something you just pick up and put down – this requires dedication. And, of course, a fat wallet."

## TOP 10 HOME CINEMA

Read full reviews of all the gadgets in our Top 10s at [www.stuff.tv](http://www.stuff.tv)

Stuff  
HOT BUY

### Sony BDV-N590 £320

[sony.co.uk](http://sony.co.uk)

The BDV-N590 isn't just good – at the moment, there isn't a more complete, better-value home cinema system around. It's more stylish than its forebears, its PS3-emulating curves incorporating a side-mounted disc-loading slot plus touch-sensitive controls. It's also exceptionally well equipped for its price, with twin HDMI inputs, a USB-in for an iPod dock and analogue and digital ins. Picture and sound quality are excellent, whether you're playing a 3D Blu-ray or streaming from the array of built-in smart services, including Sony's own on-demand offerings.

**KILLER FEATURE** The ability to 'throw' web pages from your phone to your TV

### STUFF SAYS

★★★★★

Massive spec, yet micro-priced: the Sony is quite simply the biggest bargain in home cinema

NEW

### Sonos Playbar £600 ★★★★

A characteristically Sonos take on the soundbar, the Playbar hooks up to your TV via its single optical input and fills your room with a big, detailed sound. And as with all Sonos kit, it can also stream your own music files or Spotify wirelessly around the house. Brilliant.

NEW

### Panasonic SC-BTT590 £300 ★★★★

A fine all-rounder, this Panasonic has excellent picture quality and immersive surround sound. Its vastly improved Viera Connect smart portal is respectable now, with BBC's News, Sport and iPlayer apps, plus AcetraX and Netflix movie streaming.

INSTANT EXPERT



### Yamaha YSP-3300 £1000 ★★★★

If you've got more money than space, send your butler out now for the 3300. This compact bar delivers a fantastically convincing virtual surround sound by bouncing audio off the walls, and it'll pass through 4K or 3D video to your TV via HDMI.



### Samsung HT-E8200 £450 ★★★★

A true king of convenience, this is a 3D Blu-ray-playing, smart-TV-streaming, HDMI-switching soundbar. Its subwoofer can overstate itself at times, but its overall sound and feature set – still minus Spotify, sadly – make this a bargain at the price.



### LG NB3520A £200 ★★★★

What do you want from an affordable soundbar? Great build and finish? Wireless subwoofer? Bluetooth connectivity? Dynamic, detailed and spacious sound? This LG's got it all. Ideally it'd have HDMI inputs too, but you can't have everything at this price.



### LG BH8220B £300 ★★★★

The aluminium-look LG stands apart from the black plastic herd, and it's well-speced, with a capable 3D Blu-ray drive and a new, fuller Smart TV package featuring AcetraX, Blinkbox, Lovefilm and Netflix. A slight lack of bass weight is the only drawback.



### Philips HTS5563 £305 ★★★★

The Philips has a lot going for it: it's compact and attractive, its picture quality is as good as you'll get at this price, and it's particularly effective with surround panning from speaker-to-speaker. But its online offering is merely average, and it's not the thing for big rooms.



### Samsung HT-E5530 £315 ★★★★

Looking to fill a big room with sound? The Samsung's tallboy front speakers and meaty subwoofer will do the job. It's well-speced too, with an excellent Smart Hub portal. Pity, then, that the surround sound presentation isn't particularly well-integrated.



### Harman/Kardon BDS 570 £560 ★★★★

This shoebox-sized Blu-ray player/receiver bridges the gap between separates-style kit and all-in-one systems. Picture and sound quality are fine, but streaming is limited. An upgraded H/K range with better streaming is due soon, so look out for bargains.

**Tony Horgan** He's got you surrounded

[tony@stuff.tv](mailto:tony@stuff.tv)

So you've bought yourself a flatscreen TV. The picture blows you away, but the sound just blows. Something has to be done. Do you go down the full-fat surround-sound route with a minimum of five speakers, plus subwoofer? Do you just take sound from your TV and route it through your existing hi-fi? Or do you aim for the best of both worlds and go for a soundbar? This latter option is increasingly persuasive, what with most manufacturers offering the likes of Bluetooth connectivity, wireless subwoofers and, in certain circumstances, switching for all of your other AV devices too. So if you lack the space or the inclination for a full-on speaker package, do your TV a favour and check out the soundbar options around. A good start would be our test on page 72.



// A soundbar may be your best option for an audio upgrade'

**1 Number of speakers** This depends on aesthetics and, of course, the tolerance of those you live with, but if you're buying with an eye on the future, note that 6.1 and 7.1 movies will gradually become more common.

**2 Amp abilities** Cinema-in-a-box comes with an amp, thus reducing under-telly clutter. Don't fixate on wattage ratings – audio quality is far more important than volume.

**3 DVD or Blu-ray?** Almost every Blu-ray spinner will also play DVDs, so invest in a Blu-ray set-up as your primary cinema system.

**4 3D** Many TVs support 3D, so consider a 3D-ready home cinema – whether it can play 3D discs itself, or pass the content to your telly.

**5 Compromise** If domestic bliss relies upon a lack of surround speakers, consider 'cheat' surround (such as a sound bar) – but get a friendly dealer to let you try before you buy.

WHAT TO LOOK FOR

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HALF-PRICE PHONES!

## TOP 10 ▶ TV RECEIVERS & RECORDERS

Read full reviews of all the gadgets in our Top 10s at [www.stuff.tv](http://www.stuff.tv)



### Sky+HD from £free + £32/month

[sky.com/hd](http://sky.com/hd)

Sky's subscription service now offers more than 65 channels of HD plus 3D, depending on your package. The latest version of the box includes a 500GB hard disk, 250GB of which is for your own recordings, the rest for Sky On-Demand. Hook up your box to the web and you'll get iPlayer, ITV, 4oD and Demand 5 content too, plus on-demand access to the best of Sky's output. Subscribers also get access to the streaming app Sky Go for free, while the new Sky Go Extra, which allows you to download content to your own devices, is available on trial for £5 a month.

**KILLER FEATURE** Still the best channel line-up you'll find anywhere



### Virgin TiVo from £free + £13/month ★★★★

Hardware-wise, the taste-learning TiVo is a Sky+HD-beater, but it loses out on content. Its TV Anywhere app is a neat touch, as is the addition of multi-room streaming, which allows you to share recorded content between multiple boxes on your home network.



### Samsung STB-E7500 £230 ★★★★

Still the best Freeview HD box out there, the Sammy's slick, dual-core operation, twin tuners and 500GB HDD are enough to keep it ahead of the also-rans, while its superior raft of movie-streaming services are what beats the excellent Humax T1000 (below).



### Humax DTR-T1000 £240 ★★★★

This 500GB YouView PVR is a brilliantly effective amalgamation of live, recorded and streamed television, made all the more attractive now that Sky's Now TV service is available on the platform. A larger-capacity 1TB is now available too, for an extra £50.



### Humax HDR-FOX T2 (500GB) £200 ★★★★

The HDR-FOX T2 remains a fantastic Freeview+HD box in its own right, with a great picture, finger-friendly remote and range of features. However, the launch of the YouView-capable DTR-T1000 (above) means it's less attractive than it used to be.



### Humax HDR-1000S (500GB) £240 ★★★★

This Humax runs Freesat's YouView equivalent, Free Time, with similarly great results. It serves up clean, detailed pictures, superb sound and an EPG that makes more sense than most. Only a lack of built-in Wi-Fi and on-demand content (for now) holds it back.



### Panasonic DMR-HW100 £150 ★★★★

It could be a tad slicker and pack a little more space than 320GB, but we love the HW100 anyway. It'll record two HD channels at once, converts 2D to 3D and offers Viera Connect – now with support for BBC iPlayer – as well as SD and USB inputs for media playback.



### Virgin Media V HD from £free + £8/month ★★★★

If you like the sound of Virgin Media's HD service, but either aren't interested in TiVo's recording functions or are working on a limited budget, this simple cable receiver is for you. It offers access to both live and on-demand HD and performs extremely well.



### Echostar HDS-600RS £250 ★★★★

Smarter than most, the Echostar marries twin Freesat tuners with Slingbox functionality. Hook it up to the net and you'll soon be watching whatever you've recorded, wherever in the world you happen to be, on your phone, tablet or computer.



### BT Vision+ from £free + £5/month ★★★★

BT's on-demand service is a decent package made all the more appealing now that you have the option of selecting the Humax DTR-T1000 YouView box (No. 4) instead. This brings Freeview HD, all the usual YouView features plus BT's on-demand content.

## STUFF SAYS ★★★★

You'll pay for the privilege of ownership, but this is still the best all-round PVR package on the market

**Tom Wiggins** PVR-tester

[tomw@stuff.tv](mailto:tomw@stuff.tv)

You know what really bugs me about some PVRs? How poor their EPGs are. And don't get me started on remotes. Alright, so at first glance one EPG may look very like another – after all, it's just a long list of names of TV programmes. But you don't have to live with one for long before you realise that the difference between a quality EPG and a so-so effort is like that between three courses at Michel Roux's and a service-station sandwich. The remote control is even more crucial. Is it backlit? Are the buttons too close together? Does it resist slipping down the back of the sofa? These are important things that massively affect your viewing experience, so do your research first and don't put up with anything that's badly laid-out.



// An EPG is just a long list of TV programme names, right? No!"

**1 Hard drive capacity** 500GB to 1TB is the norm for most recorders these days. Hi-def video eats up hard disk space, though, so make sure you buy the largest capacity box you can afford.

**2 HD?** Don't buy a recorder unless it can receive and output HD broadcasts. If you're planning to subscribe, we'd choose Sky or Virgin, but Freesat and Freeview HD don't cost a penny.

**3 Keep it cool** A hard-disk-equipped box requires fan cooling, so don't put one inside a cupboard or near an amp, or risk crashes.

**4 Upscaling** Boxes with HDMI outputs can often upscale lower-resolution images to suit your TV's pixel count. Compare the results to your TV's own scaling to see what works best.

**5 Catch-up and on-demand** Most PVRs now come with apps for on-demand and catch-up TV. The services available differ from device to device, so do your research before you buy.

## WHAT TO LOOK FOR

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STUFF SAYS ★★★★ HOT BUY

The best advanced compact around, and a retro-tastic joy to use

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TECH SPECS

## TOP 10 HOME COMPUTERS

Stuff  
HOT BUY

### Apple iMac from £1100

apple.com/uk

Apple's latest all-in-ones are so slim you might miss them. The 21.5in or 27in screens are just 5mm at their thinnest (at the cost of an optical drive) – though the stand is still the same size, so you don't save any space. But you do get more power than ever: Core i5 or i7 Ivy Bridge processors, dedicated graphics, at least 8GB of RAM and the option for Apple's hybrid Fusion Drives. In operation it's smooth as ever, and OS X Mountain Lion is elegant compared to the hubbub of Windows 8. Apple has yet to embrace touchscreen tech, but at least it'll keep that luscious screen smudge-free.

**KILLER FEATURE** Using Thunderbolt you can turn it into a three-screened monster

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UPDATE

UPDATE

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### Zotac ZBox nano XS AD11Plus from £290 ★★★★☆

The Zotac packs a dual-core 1.65GHz AMD Fusion processor, 2GB of RAM and a 64GB SSD into its sub-Mac Mini frame. The newer Zotac ZBox nano XS AD12 Plus adds a AMD Radeon HD 7340 GPU – we'll be testing the refreshed model in an upcoming issue.

### Alienware X51 from £800 ★★★★☆

This PC is as happy sat by a TV as it is under a desk. It's the size of an Xbox 360 but runs a whole lot faster – and it's whisper-quiet. With a Core i5 Ivy Bridge processor, 8GB of RAM and the new 1.5GB Nvidia GTX 660 graphics card, it's got more welly than ever.

### Dino PC Mini Carnivore HTPC from £560 ★★★★☆

OK, so it's not as mini as the Zotac, but at the size of a year's worth of Stuffs, the Dino is lounge-friendly indeed, while Blu-ray, near-silent operation, low power uptake and Xbox-quality gaming all help. A recent refresh adds the Intel Core i5 3570K processor.

### Lenovo IdeaCentre A720 £1450 ★★★★☆

The A720's stand mechanism enables that lumbering 27in screen to lie flat, which is ideal for multi-user access to its 10-point multitouch. A quad-core i7 processor gives it plenty of welly while the Core i5 version, at £300 less, is almost as impressive.

### Raspberry Pi Model B £30 ★★★★☆

Designed to teach children how to code, this tiny PC has a single-core ARM11 chip and 512MB of RAM. For hobbyists willing to get their hands dirty, it's a dream. The Raspberry Pi Model A, with 256MB of RAM, is now available for a mere £20.

### Apple Mac Mini from £530 ★★★★☆

No computer is more beautiful than the seamless, aluminium Mac Mini. The 2012 version has Ivy Bridge processors (in dual- or quad-core varieties), Apple's new Fusion Drive tech and faster graphics. The whisper-quiet operation and lofty price tag remain unchanged.

### Acer Aspire 7600U £1500 ★★★★☆

The 7600U's 27in, 10-point multitouch screen is stocked with connections including a Freeview tuner and Blu-ray drive, and has a fold-away stand for wall-mounting. Although the Core i5 model we reviewed has been discontinued, a Core i7 model is available.

### Fit-PC3 Pro from £250 ★★★★☆

This admirably tiny PC3 is encased in an aluminium shell that doubles as a heatsink, which means there's no need for a fan, which means it's silent, which means we like it. Inside it has a 1.65Ghz AMD chip, but you'll have to supply your own OS and HDD.

### Sony Vaio Tap 20 £1000 ★★★★☆

Is it a giant tablet – or a portable all-in-one PC? Although Sony's unconventional device runs a little slow thanks to underpowered internal graphics, it wins points for innovation. This big ol' slab of glass could just be the future of the desktop PC.

## STUFF SAYS ★★★★☆

Powerful, gorgeous and slimmer than ever – the newest iMacs retain their increasingly skinny throne

**Stephen Graves** Deep Thought

stephen@stuff.tv

For gamers with pockets as deep as the Mariana Trench, **Nvidia** has unwrapped the **GeForce GTX Titan** (£830, nvidia.co.uk). The Titan certainly lives up to its name, with 6GB of GDDR5 memory and 2688 CUDA cores delivering 4.5 teraflops of single-precision and 1.3 teraflops of double-precision performance. Oh, and a whopping 288GB/s of memory bandwidth. So, yes, it can play *Crysis 3* at maxed-out settings. And although you can link three Titans together via SLI, it's designed with high-end, small form factor gaming PCs in mind – say, the Alienware X51, or the much-mooted Steam Box. Still, at five-and-a-half times the price of an Xbox 360, we doubt it'll be threatening the next generation of consoles any time soon.



// The GeForce GTX Titan can play *Crysis 3* at max settings"

**1 Processor speed** Still the defining component of a PC's raw power. Look for one of Intel's Core i5 or i7 CPUs, or AMD's FX-8150, if you want the best. Remember, a fast processor may also need a lot of cooling, which could be noisy.

**2 Graphics chip** If you want to game on your computer, look for a graphics chip by Nvidia or ATI and ensure that it has discrete memory. A sign that it's fast enough for fraggering is if it supports DirectX 11. Powerful graphics chips also speed up tasks such as video encoding.

**3 Screen quality** Don't buy an all-in-one unless you're sure its screen is one you can look at all day. Ideally you'll want a colour-rich IPS or MVA panel for accurate photo editing.

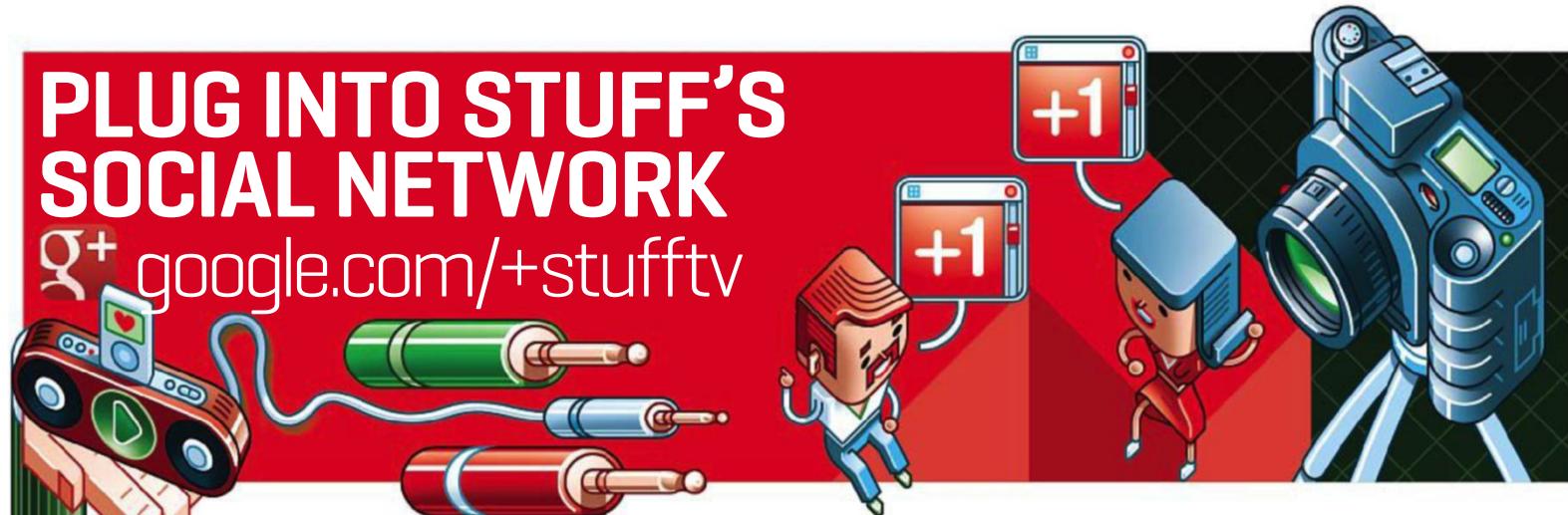
**4 Storage** The fastest computers combine solid-state drives and hard disks for raw speed. Media centre? Get at least a 1TB hard disk for recording TV, and look out for Blu-ray drives.

WHAT TO LOOK FOR



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## TOP 10 Laptops

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HOT BUY



### Apple MacBook Air 13in from £875

[apple.com/uk](http://apple.com/uk)

If you're an Apple fan, deciding which MacBook to buy just got a lot harder. The 2011 Air has long been our No.1, and the 2012 models now have new Intel Core i5 or i7 Ivy Bridge processors, improved Intel HD 4000 graphics and two USB3.0 ports. So the best just got better – simple. Except it's not that simple, because the new MacBook Pro with Retina Display (below) is now more portable and more powerful than any previous Pro. It's also loads more expensive, though, and while our hearts might say 'Pro', our minds (and bank managers) are saying 'Air'. That's why it keeps the coveted top spot. Just.

**KILLER FEATURE** It might be more powerful than ever, but it's also silent

### STUFF SAYS

★★★★★

Tiny it may be, but the stunning MacBook Air, running the best OS out there, won't shirk big jobs



### Apple MacBook Pro with Retina Display from £1205 ★★★★★

Simply put, the 15-inch is the best laptop (ever) thanks to power, portability and the best screen of any laptop we've seen. The newly tested 13in model has less grunt but is a tidier size. So why No.2? Because they're both pricey, and in real life we'd have to go for the Air.



### HP Envy 6 Sleekbook £420 ★★★★★

AMD Trinity processors power this Ultrabook alternative, making it cheaper and more battery-filled. The Envy 6 has a quality metal lid and rubberised base, 15.6in screen, and its 6GB RAM gives the 500GB hard drive faster boot times than a similar Intel core i3.



### Samsung Chromebook £230 ★★★★★

A slim, light chassis, 12-hour battery life and super-speedy operation make this low-cost netbook a winner. It's not ideal for gaming or HD videos, but most of Google's tools work offline too. The Pixel, reviewed on p128, has better specs but is way too pricey.



### Asus S200E £400 ★★★★☆

The touchscreen makes it ideal for Windows 8, but the S200E's also got a top keyboard, bags of connectivity and enough power for 3D gaming. Specs aren't quite top notch, but with i3 or i5 Sandy Bridge cores, 4GB RAM and a 24GB SSD, it's good for the new low price.



### Alienware M17x from £1300 ★★★★★

At 4.26kg the M17x is only really portable in theory, but it's carrying the good kind of weight – the kind that includes Radeon HD7970M graphics, an Intel Core i7 Ivy Bridge chip, and a precise 17in 1080p screen. The kind of weight that crushes modern games.



### Asus Taichi 21 £1250 ★★★★☆

You don't need to be a travelling salesman to love the Taichi. This Win8 hybrid sticks a live tile-friendly touchscreen on top of a full laptop sporting Core i7 innards. You know how the saying goes: why settle for one 11.6in HD screen when you can have two?



### Acer Aspire S3 from £650 ★★★★★

There's no denying that Acer's first Ultrabook, the 13.3in Aspire S3, is invading the MacBook Air's territory: it comes with an Intel Core i7, 4GB RAM, 500GB HDD/SSD hybrid drive and HDMI. The Air is pricier, but has a sharper screen and better build.



### Samsung 900X4C from £895 ★★★★★

Cramming a 15in screen into a 14.9mm slim body is impressive – the quality of said screen, slightly less so. But with 8GB RAM, a 1.7GHz Intel Core i5 Ivy Bridge chip and 128GB SSD, it's a solid Air alternative. Price cuts bring it into line with the Air, too.



### Lenovo IdeaPad Yoga 13 £1000 ★★★★★

This 13.1in, 1600x900 touchscreen laptop hinges back on itself, turning a full-on Ultrabook into a full-sized tablet. A bit too hefty to be sexy, but you do get a Win 8 laptop with up to Core i7 innards. One issue: in tablet mode the keys rub your knees.

Luke Edwards **ultrahooked**

luke@stuff.tv

If we went back in time to show off a modern laptop to a young Steve Jobs we're pretty sure he'd be dazzled. We're also sure he'd point out the trackpad needs improving. If only we could take the amazing **Leap Motion** (USS80, leapmotion.com) along to show him too. This hand-tracking control bar will be released in May, and should make using a trackpad or mouse feel like brushing your teeth with a broom. With insane level of accuracy on all ten of your digits, it can be used for virtually any task your on-the-go needs throw up – from simple *Angry Birds* control to intricate image manipulation. The only question is why it took so long for this tech to get from *Minority Report* to your computer.



INSTANT EXPERT

WHAT TO LOOK FOR

// **Leap Motion** could make using a mouse or trackpad absurd"

**1 Connections** You can't have too many USB ports, and ideally at least one of them should be USB3.0. Insist on HDMI, and view VGA as a last-resort back-up. FireWire, Thunderbolt (Intel's 10Gbps superfast I/O) and eSATA will expand your power-user options.

**2 Interface** Keyboards and trackpads are often taken for granted, but their quality and design really matter. Some keyboards play rotten tricks by swapping critical keys around, or omitting others altogether. If it's possible, get hands-on with the device before buying.

**3 Operating system** If you're already on board with Mac OS X it's unlikely you'll entertain the idea of switching to the fresh and colourful – but still fiddly – Windows 8. However, Apple doesn't do cheap laptops, so if your budget is tight it'll be Windows for you. Google's browser-based Chrome OS is another option.

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	W9	40, 46, 55


NEW GT60  
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	GT60	42, 50
	VT65	50, 55, 65
	ZT65	60


NEW F7000  
**Samsung SMART TV**  

	LED TV	
	F7000	40, 46, 55, 60
	F8000	40, 46, 55, 65, 75
	F8500	46, 55


SONY • BDP-S790 3D BLU-RAY PLAYER

Give your movie collection the red carpet treatment with this award-winning player with advanced networking features, superior audio performance and support for SACD.

YAMAHA • YSP-3300 DIGITAL SOUND PROJECTOR


The 16 array speakers, controlled by Yamaha's YSP technology, plus two powerful woofer units in the large cabinet deliver excellent sound quality with clearly positioned dialogue and superb surround effects. The wireless subwoofer delivers clear and powerful bass.

SONOS • PLAYBAR SOUNDBAR & WIRELESS SPEAKER

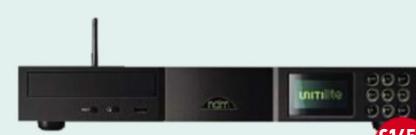

This plug-and-play unit incorporates 9 integrated amplified speakers. Simply connect it to your TV with the supplied optical cable to deliver an epic home cinema sound in your own living room. PLAYBAR can also expand your existing Sonos system.

ONKYO • CR-N755 • CD / NETWORK SYSTEM


Streaming music system featuring built-in access to Spotify and Last FM along with Internet radio from AUPEO! Includes a CD player, 24-bit/192kHz DAC, FM/AM tuner and USB port.

B&W • P3 HEADPHONES


BEYERDYNAMIC • T 50 P HEADPHONES


NAIM UTILITITE ALL-IN-ONE STREAMING SYSTEM


Comprises a CD player, MP3/iPod and USB memory stick playback, digital to analogue converter, high resolution 32bit/192kHz capable network stream player and integrated 50W amplifier in one sleek enclosure.

B&W • A5 & A7 WIRELESS MUSIC SYSTEMS


Bringing together over 45 years of audio expertise with intuitive AirPlay wireless streaming technology to create a system that gives all the convenience and freedom of wireless music, without compromising on sound quality.

DENON • COOCOON HOME • SPEAKER DOCK


MERIDIAN • EXPLORER USB DAC / HEADPHONE AMP


High quality dock system featuring built-in AirPlay functionality for wireless music streaming from iTunes along with support for Android and Windows devices via a free Denon Coocoon app.

Meridian's Explorer is a portable, compact and rugged USB DAC designed to deliver best-in-class audio performance. Featuring premium audiophile-grade components throughout, a 6-layer circuit board, an elegant all-metal enclosure, the Explorer delivers the Meridian audio experience from virtually any computer.

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## TOP 10 SAT-NAV

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HOT BUY



### TomTom GO LIVE 1005 from £220

[tomtom.com](http://tomtom.com)

We're smitten. With its spacious 5in screen, smooth graphics and clever new route calculation method, the TomTom 1005 is our favourite sat-nav yet. Even the windscreens mount is slickly engineered. Yes, there's an added cost for that loveliness, but you do get a year's free Live services, including TomTom's talented HD Traffic, complete with accurate real-time info on road snarl-ups. After the first year, the services cost £47.50. The 'World' version, with maps for USA, Canada, Oz, NZ, Malaysia and some of South America, is just £30-odd more.

**KILLER FEATURE** Confidence-inspiring stability and services



### Google Maps Navigation Android, iOS £free ★★★★☆

Apple's Maps app for iOS6 remains pretty, but flawed. With Google Nav now back in the iTunes Store, there really is one solid choice for both iOS and Android users and this is it. Street View, accurate public transport info, cycle maps and decent traffic warnings. Bingo.



### Garmin nüvi 3490LMT £225 ★★★★☆

Slender and stylish, this posh-nav might look expensive but it comes with the major benefit of live traffic info – via a Garmin smartphone app – free for the lifetime of the device. Add pinch-to-zoom, 3D maps and photo-realistic junctions, and it's a win.



### TomTom Go Live 820 from £155 ★★★★☆

The interface and resistive touchscreen feel dated compared to a smartphone, but the TomTom does what it's supposed to do with a refreshing lack of fuss. There's snappy re-routing and accurate traffic, plus a surprisingly handy built-in windscreens sucker.



### Garmin nüLink! 2390 £130 ★★★★☆

It might look boring at first, but the nüLink! has the ability to display images from traffic cameras, so you can see traffic jams before you catch up with them. The fact that this special skill is now available at £100 less than its launch price makes this a superb buy.



### Garmin Edge 810 from £345 ★★★★☆

The updated Edge is still an expensive and somewhat bulky cycle computer. But new live tracking smarts via an iOS/Android app, as well as instant ride data uploads, make this the smartest bikeputer yet. And it can do on- or off-road sat-nav, albeit without voice.



### Garmin nüvi 3590LMT £230 ★★★★☆

Similar to the skinnier 3490LMT above, except that it benefits from both free traffic updates and free map updates for life, connecting to a smartphone via a Garmin app to get both. But sadly, its 5in screen is the same 800x480 resolution as its little brother.



### CoPilot Live Premium Android, iPhone from £20 ★★★★☆

The best paid-for nav app for iOS, but a fiddly search interface puts it behind Google's navigator. An extra £30 buys a European maps pack that frees you from data munching abroad. It now comes with a free 12 months of real-time traffic, which used to cost £10.



### Nokia Drive Windows Phone 7.5 £free ★★★★☆

Drive was always a popular choice, with its ability to preload global maps over Wi-Fi, meaning you can use it anywhere and not rely on a 3G connection. And now it also has live traffic, making Lumia Windows Phone users quite the luckiest badgers in the sett.



### TomTom Urban Rider from £190 ★★★★☆

The Urban Rider is still rocking the bottom of the Top 10 as the most affordable motorbike sat-nav, although a charging mount will cost £45 more. Of course, the new twisty-road targeting Rider (£330) might find favour, if you're willing to spend the extra spondulicks.

## STUFF SAYS ★★★★★

Not the cheapest, but we reckon the big screen, software and slickness are well worth the outlay

**Will Dunn** gets his kicks on the A316

will@stuff.tv

Car insurance is a costly business, but to what lengths would you go to keep premiums down? How about letting your insurers know exactly where – and how – you're driving at all times? Heraldng the rise of telematics car insurance, **Fair Pay Insurance** ([fairpayinsurance.co.uk](http://fairpayinsurance.co.uk)) equips its customers with a TomTom PRO 3100 featuring Active Driver Feedback to alert you when you're driving like a footballer in his first Ferrari. Meanwhile a 'black box' crammed full of accelerometers beams driving data to the Fair Pay mothership. FP claims it could save you money (quoting savings for 75% of drivers), but if your behind-the-wheel style is more demolition derby than *Driving Miss Daisy*, it may have the reverse effect. Are you confident enough to try it?



**// A black box beams evidence of bad driving to your insurers"**

**1 Size and positioning** Safety first, people. Pick a sat-nav size to suit your car – if it's too big, it'll affect visibility and be overly distracting. Put it bottom right, not centre-middle, so it sits near the A-pillar. It'll bring the screen closer to you.

**2 Ease of use** A reasonably difficult thing to ascertain until you've spent some time with a sat-nav, but ease of use is crucial for a smooth journey. Learn to use your sat-nav efficiently and always set it up before you set off.

**3 What about free-nav?** You know, like Google Navigation on Android phones, and Nokia's Drive (Nos.2 and 9). They're damn good. But download offline maps if you're going abroad.

**4 Mapping** Do you go to Europe regularly? Or the US? Most devices will allow you to purchase extra maps to upload for your trip, but buying one pre-loaded might be worthwhile if you're a bit of a knight of the road.

## WHAT TO LOOK FOR

### IN CASE YOU MISSED...

### PORTABLE MUSIC GEAR



#### Pioneer RMX-1000

£600 | [pioneer.eu/uk](http://pioneer.eu/uk) ★★★★☆

Full of roof-raising effects, there's nothing quite like the RMX-1000 in terms of usability and pure satisfaction. It's a dangerously addictive addition to the DJ booth.



#### Novation Mininova

£300 | [novationmusic.com](http://novationmusic.com) ★★★★☆

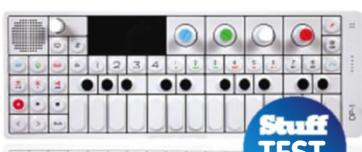
Inspired by Korg's microKORG series, the Mininova builds on the formula, serving up a platter of sonic surprises. This is a beautiful portable synth bursting with creative potential.



#### Denon MC2000

£270 | [dm-pro.eu](http://dm-pro.eu) ★★★★☆

In the battle for house party supremacy, Denon's compact MC2000 has all you could want for a back-to-mine shindig. Simply plug and play for domestic DJ debauchery.



#### Teenage Engineering OP-1

£800 | [teenageengineering.com](http://teenageengineering.com) ★★★★☆

The OP-1 compacts a world of glitchy electronic sounds into a perfectly balanced soundslab, making for a super-fun music machine that gives as much as you can possibly take.

**Stuff TEST WINNER**

NEW

**Tomb Raider PC/PS3/Xbox 360**[tombraider.com](http://tombraider.com)

Completed *Far Cry 3*? Finding it difficult to see the point in life without a bow and arrow to spice things up? Fear not, for Lara Croft is here, and she has exactly the old-school projectile weapon you're looking for. Yes, it's a Franchise Reboot and yes, it's an Origin Story, but *Tomb Raider*'s well-paced mixture of puzzles, action sequences, shoot-outs and stealth make for a deeply immersive, cinematic experience. With large, highly explorable environments and a long, twisty story, this is very nearly the best fun we've had pretending to be a 21-year-old girl.

**WATCH OUT FOR** Hidden journals and USB sticks that flesh out the story**STUFF SAYS**

★★★★★

Nice to see the pneumatic Lara remade into a more believable character in this big, cinematic blockbuster

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1**Far Cry 3 PC/PS3/Xbox 360** ★★★★★

Incredibly, Ubisoft has taken the premise of 'rich white tourist goes to war on third-world islanders' and turned it into an intensely engaging, hugely enjoyable adventure. With a massive range of quests, FC3 is good for several months of entertainment.

**Dishonored PC/PS3/Xbox 360** ★★★★★

This whale-oil-fuelled steampunk adventure is *Deus Ex* with a crossbow, and as such it's all about choice: 'ghost' the game without killing anyone, go in stabbing with your sword or use your eldritch powers to summon a swarm of man-eating rats.

**Assassin's Creed 3 PC/PS3/Xbox 360** ★★★★★

A huge game in every sense, with a very long central campaign, a cornucopia of minigames and side missions, and a vast world to explore. Finished all that? Then the first part in a trilogy of DLC, *The Tyranny of King Washington*, is on its way.

**FIFA 13 PC/PS3/Xbox 360** ★★★★★

The field of choice for Stuff's office league continues to impress. The tweaks are relatively subtle, but add up to a huge advance in realism. They've even sorted out some of our gripes such as AI teammates running offside too often.

**Forza Horizon Xbox 360** ★★★★★

Previous Forza games were lauded for their realism, accuracy and looks. *Horizon* takes that expertise, hands you the keys and allows you to go joyriding in an open-world landscape, challenging other drivers and driving like a mad, cackling fool.

**Ni No Kuni: Wrath of the White Witch PS3** ★★★★★

Even if you haven't played a Japanese RPG since 1998, this charming story is worth revisiting the genre for, and if you're a fan of Studio Ghibli animation, it's a must-play. Plus, it features an amusing Welsh potato-creature with a lantern in his nose.

**Halo 4 Xbox 360** ★★★★★

Master Chief is back to battle the Prometheans. No, not the ones from *Mass Effect*. No, not the guys from *Prometheus*. But if you're after imagination and a story, you're missing the point. If you're after weeks of brainless, alien-wasting fun... bingo.

**Borderlands 2 PC/PS3/Xbox 360** ★★★★★

The first *Borderlands* took a gamble on its boldly original, cel-shaded style of animation, and won a big pile of fans and money. The sequel looks even better, while also serving up extra helpings of humour, explosions and frenetic punishment.

**DmC: Devil May Cry PS3/Xbox 360** ★★★★★

This brimstone-laced hack 'n' slash series made a name for itself by placing a premium not just on how many demons you kill, but how cool you look doing it. This reboot adds a barmy gameworld, a new Dante and even cooler combat.

INSTANT EXPERT

**Will Dunn** ate all the (game) pies[wild@stuff.tv](mailto:wild@stuff.tv)

EA's DRM-riddled *SimCity* launch was a fiasco that ruined a potentially brilliant game, but for one guy it was great publicity. At the same time as EA's servers were crashing under the weight of the always-online game, developer Brandon Smith was launching the Kickstarter page for his DRM-free, Windows-Mac-and-Linux-supporting city-builder ***Civitas*** ([civitasgame.com](http://civitasgame.com)). And it may even turn out to be a better game than *SimCity*: you start by terraforming the land itself, creating mountains and lakes and forests, then add a few simple houses and eventually end up with a huge megalopolis complete with zoning, building regulations, utilities and transportation systems. Oh, and you can preorder it for US\$15, subject to the usual Kickstarter delivery-time proviso.



// **Civitas** is a DRM-free *SimCity* in which you can terraform land //

CONSOLES: WHAT TO LOOK FOR

**1 The big two** Choosing a games console is exactly the same as a general election. Once every five years or so, you pick from one of two options, loosely basing your decision on what you've gone with before. The result is pretty much exactly the same whichever you choose, but some people get surprisingly het up about it. Some games are only available on one platform, but most major releases are on both. Or you could choose the third option – Nintendo – and end up smug but unsatisfied most of the time.

**2 Movies and music** Both the Xbox 360 and PS3 now have enough streaming skills that they can serve up films, TV shows, music and more through a variety of apps. But the PS3 will always have the edge thanks to its Blu-ray player.

**3 Peripherals** The Xbox 360 wins this battle thanks to the futuristic Kinect, but add a 3D TV to your PS3 and you're in for a treat.

# PLUG INTO STUFF'S SOCIAL NETWORK

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## TOP 10 CAMCORDERS

Read full reviews of all the gadgets in our Top 10s at [www.stuff.tv](http://www.stuff.tv)

Stuff  
HOT  
BUY



### Sony NEX-VG20 £1590 (w/18-200mm lens)

[sony.co.uk](http://sony.co.uk)

The Sony NEX-VG10 has been knocked off top spot to make way for its successor, the VG20. But this is no mere title bump: it's a vast improvement. Not only is this the best-looking camcorder on the market, it also adds a higher bitrate for glitch-free footage, incredible 5.1 sound, and 1080p@60fps video shot on a 16.1MP APS HD Exmor sensor – the same found in Sony's NEX-5N and NEX-C3 mirrorless cameras. Chuck in superb stills, comprehensive manual controls, great RAW skills and refinements including enhanced grips and a second record button, and you've got the best camcorder around.

**KILLER FEATURE** Compatibility with Sony's seven different E-mount lenses

**STUFF SAYS**

★★★★★

A great pro-quality all-rounder that adds a string of updates to an already impressive package



### GoPro Hero3 Silver Edition £225 ★★★★

Thinner, lighter and more feature-laden than ever, the rugged Hero3 won't disappoint, shooting great 11MP snaps and wide-angle 1080p@30fps. HD Hero2 owners after 4K footage or 720p@120fps might want to hold out for the Black Edition, reviewed soon.



### Canon XA10 £1335 ★★★★

Canon's ultra-compact XA10 handles fine detail superbly due to its f/1.8 lens and 2.37MP chip. It may not look big enough to play with the big boys, but twin XLR inputs on its detachable handle give it professional prowess straight out the box.



### Sony HDR-TD10 £830 ★★★★

The king of 3D video does it properly, with two lenses plus two Exmor chips adding up to superbly sharp footage. Decent touchscreen controls and astounding depth (in 2D and 3D) make up for the hefty size. It's being phased out, so get your best haggle on.



### Ion Air Pro Plus £200 ★★★★

This head or handlebar cam serves up 1080p video with simple, intelligent operation, and 10m waterproofing. An extra £65 gets you the Air Connect kit, which includes the accessory for smartphone viewfinder and remote control, plus battery booster.



### Sony HDR-PJ30VE £670 ★★★★

If regaling others with holiday stories is as important as the holiday itself, this is your cam. It's great for the cash, with smooth 1080p footage, but you also get a decent pico projector that'll plaster a 30in wall with colourful images of your sun-scorched torso.



### JVC Piccio GC-FM2 £70 ★★★★

With a 3in touchscreen, 1080p@25fps video skills, HDMI out and three time-lapse modes, the Piccio is well specced for its size. Quality of footage is good – although it's not the strongest performer in the dark – and it's really a bit of a bargain.



### Panasonic HC-V720 £465 ★★★★

The Pana shoots 1080p@50fps and has a 50x optical zoom – and although taking it up to 1500x digital zoom is a silly idea, 200x works perfectly well. Built-in Wi-Fi and smartphone apps are useful, although a brief battery life is a real shame.



### JVC GZ-VX815 £400 ★★★★

Compact and effective, the JVC is feature-laden and has Wi-Fi for smartphone hook-ups. Auto-focus is fast and IS is smart. It shoots 1080i@50fps: fine if you're filming for TVs; if you're working with PC screens you'll have to use 720p iFrame video instead.



### Liquid Image Summit HD £220 ★★★★

A 720p video camera crossed with a pair of ski goggles removes the need for mounts. For the full HD treatment, there's the Apex HD, with remote smartphone control. Aquatic shots more your thing? Take it underwater with the new Explorer series.

**Lucy Hedges** Camera friendly

lucy@stuff.tv

In an ideal world we'd have it all: a top smartphone, the finest laptop, tablet and camera, the coolest pair of cans and a home cinema system to rival the local Odeon. Alas, having it all often means having to forgo such necessities as food and mortgage repayments. Ever thought about repurposing your gadgets while you save? While this won't work with your 10in tablet, the **Hitcase Pro** (£112, [hitcase.com](http://hitcase.com)) does a good job of transforming your iPhone 4/4S/5 into a fully-functional shock-, dust- and waterproof wide-angle action cam for mounting on to helmets, surfboards and whatever else you fancy. It's no match for the supremely specialised GoPro Hero3, but if you're strapped for cash, a spot of gadget multi-tasking could be in order.



// The Hitcase Pro transforms your iPhone into a GoPro... kind of'

**WHAT TO LOOK FOR**

**1 Storage** The two most popular storage types are hard disks and solid state – either built-in, on cards, or both. HDD camcorders have bigger capacities, but are also larger and more vulnerable to bumps; flash memory drives and cards are becoming a better bet as prices continue to fall.

**2 Zoom** Some models offer up to 70x optical zoom, but most will have between 10x and 20x. Remember to separate claims about optical and digital zooms: digital reduces picture quality, since it just expands the captured image.

**3 Stills** If you want your camcorder to double as a stills camera, remember most are capable of producing only mediocre-quality photos. Loads of cameras can record HD video, though, so they're a better bet if you want one do-it-all gadget.

**4 3D** You can give your films an extra dimension with a 3D-capable cam. Some use two lenses, some a converter kit; either will need a big wallet.

# Top 10 apps for each major platform

[www.Stuff.tv](http://www.Stuff.tv)

The screenshot shows the Stuff website's 'Top 10 Android apps' section. At the top, there's a navigation bar with links for 'HOME', 'NEWS', 'REVIEWS', 'TOP 10s', 'VIDEO', 'WIN', and 'GADGET AWARDS'. Below the navigation, the heading 'Top 10 Android apps' is displayed. The first app listed is 'PowerAMP' (version 2.0, released April 2011), which is described as 'Simply the best music app available for Android - clear, clean and able to play a spectrum of formats'. The 'STUFF SAYS' rating is 5 stars. Other apps listed include 'Cut the Rope' (version 1.0, released June 2011) and 'Samsung GALAXY Note'.

# TOP 10 CAMERAS

Read full reviews of all the gadgets in our Top 10s at [www.stuff.tv](http://www.stuff.tv)



## Fujifilm FinePix X10 £300

[fujifilm.co.uk](http://fujifilm.co.uk)

The X10 is the more practical sibling of the retro-tastic X100 – old-school nods include manual zooming on the 28-112mm-equivalent lens, faux-Vulcanite body covering, an engraved top plate, a threaded cable release socket on the shutter button and an optical eye viewfinder that's way bigger and brighter than those on its super-compact rivals. It's also packing a big 2/3in sensor – throw in that pin-sharp lens and super-fast autofocus and you have incredible image quality in any given situation. Look out for an upcoming test of the X20, which rocks a new digital overlay for the viewfinder.

**KILLER FEATURE** The best image quality of any compact we've ever used



### Canon PowerShot S110 £245 ★★★★☆

Superb image quality at most ISO settings, manual controls and a new touchscreen are enough to put this truly compact snapper in the No.2 spot. And while its Wi-Fi sharing isn't as easy to use as we'd like, Canon announced updates to CameraWindow at CES.



### Sony Cyber-shot DSC-HX20V £220 ★★★★☆

It's not the most compact of compacts but the 18MP HX20V builds on the success of the HX9V beautifully. The headline-grabber is the 20x optical zoom with serene image stabilisation and unrivalled video. A superb compact that's ready for anything at all.



### Nikon Coolpix AW100 £180 ★★★★☆

The 16MP AW100 isn't just one of the nicest looking tough cams out there (check out the fetching camo finish), it's also one of the best-specced. Proof? Try a 5x optical zoom and superb geo-tagging and panorama skills. Look out for the incoming AW110.



### Sony DSC-RX100 £415 ★★★★☆

The winner of this month's Supertest, the 20MP RX100 is just what we want from an advanced compact. Actually pocketable with a 1in sensor and customisable lens ring, it takes natural, well-balanced images – plus it shoots silky 1080p@50fps video.



### Panasonic Lumix DMC-FZ200 £360 ★★★★☆

If you want a superzoom cam, the Lumix FZ200 wipes the floor with its rival snoopy snappers. A small and solid build is coupled with a 24x optical zoom, an excellent auto mode and spot on exposure abilities – though video's a bit of a mixed bag.



### Canon PowerShot G15 £340 ★★★★☆

Looking for a compact(ish) camera with pro flourishes such as optical viewfinder, external flash, filter ring and plenty of manual controls? The G15 will do you proud. You'll also get crisp, clean photos with accurate colours, plus a nippy AF and a tank-like build.



### Samsung Galaxy Camera £330 ★★★★☆

The new king of snap-sharing has a 4.8in HD screen, Android 4.1, auto Dropbox uploads and loads of filter and editing apps. Its 16.3MP images aren't quite the best, but it's a sexy slice of the future and updates bring new scene modes including 'food'. Yes, food.



### Canon IXUS 125 HS £120 ★★★★☆

A surprisingly powerful camera given its tiny dimensions, the IXUS 125 HS has stripped-back controls, 5x optical zoom and no fewer than 58 different settings in auto mode. It's not one for enthusiasts, but neither does it compromise on image quality.



### Olympus XZ-2 £390 ★★★★☆

If night-time photography gets you going, the XZ-2 is a fine choice. It has the same super-fast f/1.8 Zuiko lens as its predecessor, but improves image quality thanks to a new 12MP sensor. But superior compacts can be found higher up in this list, for less.

UPDATE

UPDATE

NEW

INSTANT EXPERT

**Sophie Charara** she's got lens flair

[sophie@stuff.tv](mailto:sophie@stuff.tv)

How many 15.3MP sensors does it take to build an insanely specced Sigma DP compact camera? One? Two? The answer is, of course, three: as evidenced by the 46MP **DP3 Merrill** ([USigma.com](http://usigma.com)), first unveiled at CES. The method in this component pile-on madness (also found in Sigma DSLRs) is that each of the three layers of the Foveon X3 sensor captures different colour information, boosting the DP3's reproduction skills. With a 50mm f/2.8 lens, the DP3 will also capture macro and telephoto shots without needing to get all up in your subject's face. The boxy fixed-lens snapper is now on sale in the US for a suitably wallet-quivering price. Hope you've got the cash. And the hard drive space for those 45MB RAW files.



// How many 15.3MP sensors does it take to build a camera?"

**1 Resolution** The number of megapixels is rapidly becoming irrelevant. So long as you're in double figures you'll be OK, so move on and focus on the things that really matter, such as...

**2 Picture quality** The only hands-on time you're likely to get is in an artificially lit shop. This will tell you nothing about picture quality, so read reviews and check out shots taken with your potential snapper on sites such as Flickr.

**3 Features** Think about how you're likely to use your camera and prioritise features such as size, style, Wi-Fi skills and whether you want in-depth control or an idiot-proof interface.

**4 Swapping lenses?** Even Canon has recently joined the likes of Olympus, Panasonic, Nikon, Ricoh, Samsung and Sony with a 'compact system' camera. The best of these can be found in our DSLRs top 10 – useful if you've outgrown your compact but aren't ready to DSLR.

WHAT TO LOOK FOR

**wex**  
photographic  
warehouse express



£30  
Cashback\*

## £30 Canon Cashback\*

### Canon PowerShot

### G1 X Digital Camera

14.3 MP with 4x Optical Zoom + £30 Cashback\*

£469 Inc Cashback\*  
You pay today £499

### Canon PowerShot

### G15 Digital Camera

12.1 MP with 5x Optical Zoom + £30 Cashback\*

£409 Inc Cashback\*  
You pay today £439

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\*CASHBACKS are redeemed via product registration with the manufacturer. Cashback available on purchases made from 07.03.13 until 31.05.13. Please refer to our website for details. Price includes VAT at 20%. FREE Delivery available on the G1 X and G15 (based on a 4 day delivery service) or Next Working Day Delivery for an extra £4.99. E. & O.E. Prices subject to change. Goods subject to availability. Wex Photographic is a trading name of Warehouse Express Limited. ©Warehouse Express 2013.

Canon



£30  
Cashback\*

**Olympus OM-D E-M5 £1140 (12–50mm lens)**[olympus.co.uk](http://olympus.co.uk)

After its success in resurrecting the PEN brand, Olympus was inevitably going to emblazon the legendary OM moniker across its first compact system camera with a viewfinder. And boy, does it live up to the name. This isn't just any old CSC, but one with pro aspirations. You get astoundingly fast autofocus, 9fps burst shooting, an excellent EVF, a weatherproof body, tons of controls, and superb 16MP pics right through to ISO 25,600. The cherry on the well-iced cake is the Live Time mode for live view of long exposures. Post-launch deal prices see it rise to the No.1 spot.

**KILLER FEATURE** The truly amazing Live Time mode – you've got to see it**Canon EOS 650D £515 (body only) ★★★★☆**

Our new favourite DSLR has a new hybrid CMOS sensor which enables continuous autofocus during video recording, a responsive touchscreen and 5fps burst shooting. Image quality from the 18MP sensor is excellent and focusing is super-quick. Brilliant.

**Nikon D600 £1420 (body only) ★★★★☆**

Pro power has never come at such a reasonable price. A full-frame 24.3MP sensor combines with accurate 39-point autofocus for stunning results. Dual SD card slots, built-in flash and 5.5fps shooting speed complete a seriously powerful proposition.

**Panasonic Lumix DMC-GX1 £300 (body only) ★★★★☆**

The spiritual successor to the GF1, the GX1 offers a Micro Four Thirds cam that's as satisfying for the enthusiast as it is for those stepping up from a compact. Plenty of controls and a touchscreen combine well with a superb 16MP sensor.

**Sony NEX-7 £775 (w/18–55mm lens) ★★★★☆**

A host of manual photo and video controls are available via its gorgeously minimalist unmarked knobs, but it's the exceptional quality of its 24.3MP images that really impresses. We suspect an updated model may be just around the corner, though.

**Canon EOS 60D £610 (body only) ★★★★☆**

The Canon 60D is a DSLR camera aimed at the serious amateur: a ruggedly built, feature-stuffed snapper that counts full 1080p video among its charms. An all-round great choice for the Canon user looking to step up from the entry-level models.

**Canon EOS 6D £1600 (body only) ★★★★☆**

Canon's cheapest ever full-framer is an awesome little SLR with a few clever tricks up its lens. As well as an all-new 20.2MP sensor, it packs a GPS receiver for geotagging and Wi-Fi for direct uploading or remote control from an iPhone or Android device.

**Sony SLT-A77 £740 (body only) ★★★★☆**

This Sony is super-capable, with continuous shooting speeds of up to 12fps, a 24MP sensor, rugged body and an absolutely stunning electronic viewfinder. Despite its SLR-ish looks, it has to make do with a digital eye viewfinder rather than an optical one.

**Panasonic DMC-G5 £465 (w/14–42mm lens) ★★★★☆**

The G5 is the only snapper with the pace to keep up with the Olympus E-M5's autofocus. Beginner-friendly controls, decent 16MP pics, touchscreen control and superb full HD 60fps AVCHD video recording all add up to a compelling package.

**Nikon D3200 £350 (body only) ★★★★☆**

Like its D3100 predecessor, the D3200 has an excellent photography-course-in-a-camera Guide mode, but that's no longer the star attraction. This entry-level DSLR has a very non-entry-level 24MP sensor that's capable of truly professional results.

**STUFF SAYS** ★★★★☆

The best compact system camera so far, boasting super-fast autofocus and great advanced features

**INSTANT EXPERT**

**Simon Osborne-Walker** prime suspect  
[simon@stuff.tv](mailto:simon@stuff.tv)

**Pentax** has killed the **K-01**. The ugly duckling of the compact system camera pond has waddled off, with barely a quack of protest, to a dangerous liaison with a French chef and some decidedly orangey sauce. And it didn't even survive a year in the wild. The poor K-01 was squawked at and driven away by skinnier, faster rivals – cameras that didn't crack their own LCDs when catching sight of their reflections. It had a face even Mother Pentax couldn't love. Making matters worse was the birth of its sibling, the cute MX-1 compact (£400, [pentax.co.uk](http://pentax.co.uk)), which charmed with retro looks, rather than lens swapping. Besides, Pentax's marriage to Ricoh means the GXR system could yet grow into the proverbial swan. RIP Pentax K-01(2012–2013).



// Pentax's ugly duckling, the K-01, has quacked its last quack"

**WHAT TO LOOK FOR**

**1 Continuous shooting** If you're into action photography, you'll appreciate a camera that can fire off shots like a machine gun. The average is 4fps, but 6fps and above is ideal.

**2 Live View/HD video** The former allows you to frame shots using the SLR's display; the latter captures video at 720p or 1080p. 1080p is best; look for 24fps (or faster) framerates.

**3 Kit lens** Most interchangeable-lens cameras can be bought with a standard, or 'kit' lens, which is usually around 18–55mm (or 14–42mm on an Olympus or Panasonic). That's OK for starters, but you'll want more length to get closer to the main event with sports and action.

**4 Image stabilisation (IS)** Anti-shake tech is built into more expensive lenses, but if you're buying a load of extra glass you'll ultimately save money if there's an image stabiliser already built into your camera's body.

UPDATE

TOP 10

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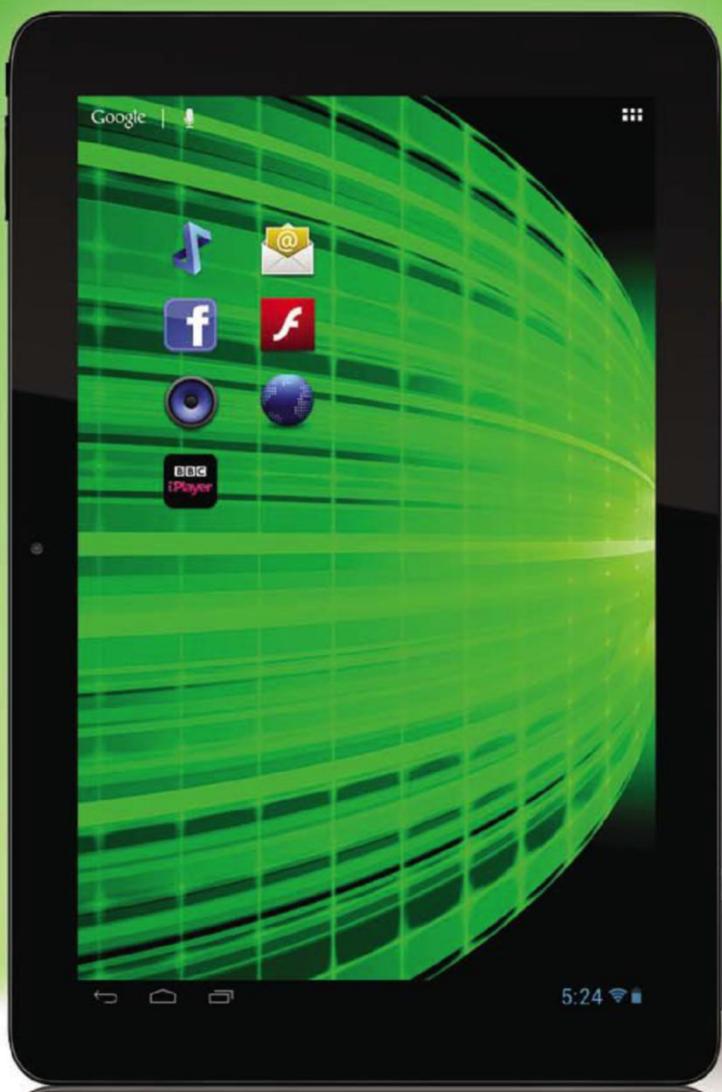
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**Stuff HOT BUY****Amazon Kindle Paperwhite from £110**[amazon.co.uk](http://amazon.co.uk)

The Paperwhite's 6in touchscreen has 62% more pixels than its predecessor, giving it pin-sharp text, but all you'll care about is the built-in backlight. It's a godsend for night-time reading, but even in sunshine the always-on light leaves text looking sharper and 'pages' whiter than ever. With a solid build, grippy rubber finish and plenty of fonts for the typographically inclined, you'll wonder how you ever lived without it. Amazon's online ecosystem still rules supreme, and the £170 3G version gets you books anywhere in the world. Feeling skint? The excellent non-touch basic Kindle is just £70.

**KILLER FEATURE** That gorgeous, sharp, bright white touchscreen display

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**Pebble £100 ★★★★**

The age of the smartwatch begins with the Kickstarter-funded Pebble. It works well as a timepiece thanks to a crisp mono LCD and customisable faces, but the fun really starts when you sync with your iThing or Android device for notifications and apps.

**Parrot AR.Drone 2.0 £255 ★★★★**

The second-generation of this app-controlled quadricopter boasts a 720p camera, easier control and – best of all – the ability to do flips. You don't need one, but you'll want one. A recent price drop means there's enough for a spare battery (£30) too.

**Apple iPod Touch from £250 ★★★★**

An iPhone without the phone, the 5th-gen Touch is lighter and thinner than ever – and it's got a 4in Retina screen, too. With iOS 6, the 5MP iSight camera, Siri, iTunes and App Store joys, this is a media device that's no longer just about playing the odd tune.

**Nike Lunar TR1+ £150 ★★★★**

Can't afford a personal trainer? The Lunar TR1+ running shoes are cheaper, and far more intelligent too. Sensors at the ball, heel and toe plus 3-axis accelerometers record how you're moving, and an iOS app gives you feedback and workouts from top athletes.

**HP Envy 110 £125 ★★★★**

Packing all the basics as well as wireless printing and AirPrint for easy use with iDevices, this whisper-quiet printer performs as smoothly as its metal and glass chassis might suggest. Did we mention it has its own email address for printing photos? Oh, we just did.

**Synology DS212j £160 ★★★★**

Slot two hard drives into this NAS box, and you can back up your precious data and stream it via DLNA to TVs, consoles, tablets or phones. It's also a print, FTP, mail and iTunes server, with iOS and Android apps. Energy efficiency is a nice green bonus.

**Teenage Engineering OP-1 £640 ★★★★**

With a synth, virtual four-track recorder, sampler, internal sequencers, FM radio – for capturing your own samples – two drum machines and a smorgasboard of effects, the OP-1 is all you need to become the next Daft Punk. Well, one of them at least.

**Sennheiser X320 £60 ★★★★**

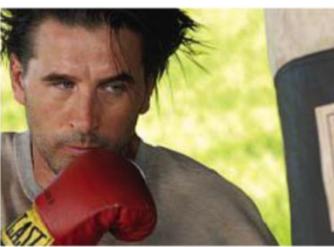
These gaming cans – with a noise cancelling mic, bass boost and controls for in-game and voice channels – are aimed at Xbox 360 users. Not of the Xbox persuasion? Look out for the U 320s, which will play nicely with your PS3, PC and Mac.

**KTM Macina Race 29 £2400 ★★★★**

Teutonic motorbike specialist KTM serves up a MTB with a four-speed 250W Bosch motor that provides torquey pedalling assistance for up to 75 miles – albeit with an initial weight penalty. Bigger 29in wheels and quality Shimano bits keep things rolling.

**RANDOM TEST****BALDWINS****Stephen Baldwin**

The youngest, smallest Baldwin had an impressive start in *The Usual Suspects* but followed it up with *The Flintstones* in *Viva Rock Vegas*. Still, his portable form factor makes Stephen a useful travel Baldwin.

**William Baldwin**

Mr and Mrs Baldwin obviously put in quite a bit of effort on this one: a very well designed Baldwin that showed great promise in *Flatliners* and *Backdraft*. Still technically an entry-level Baldwin, though.

**Stuff says** ★★★★☆**Daniel Baldwin**

Now we're talking. The higher branches of the Baldwin tree show some really tempting fruit which, in this instance, matured into a series of excellent performances in *Homicide: Life on the Street*.

**Stuff says** ★★★★☆**STUFF SAYS****★★★★★**

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**INSTANT EXPERT**

**Esat Dedeza** The tech Imelda Marcos [esat@stuff.tv](mailto:esat@stuff.tv)

Sometimes a mouse and keyboard aren't enough to channel all of your elite gaming energy. Sometimes, on top of your natural superiority, you're going to need 20 fully customisable mechanical keys, an 8-way directional thumbpad and adjustable palm, hand and thumb rests in order to reach your full fraggering potential. That's where the **Razer Orbweaver** (£115, [razerzone.com](http://razerzone.com)) comes in. Bursting out of the box with a green and black 'I mean business in a radioactive kind of way' colour scheme, the Orbweaver can pair up with Razer's Synapse 2.0 software, allowing you to map keys and save your settings to the cloud for instant LAN party setup. You'll be pwning your unfortunate peers in no time.



**// Razer's keypad will have you pwning your peers in no time"**

**WHAT TO LOOK FOR**

**1 Fun times** From sleek designs and clever tricks to sheer silly fun, one way or another gadgets should get your tech senses tingling. If you're not enjoying yourself, what's the point?

**2 Ease of use** If you need a 96-page manual, you (or they) are doing it wrong. Gadgets exist to enhance our lives and make things easier, so look for tech that's a doddle to set up, simple to use and easy to maintain.

**3 Looks that kill** A gadget should be more than just a pretty face – but if your shiny new toy will be prominently on display, then go for something that oozes just a little bit of style.

**4 Tech friendly** Look for compatibility with as much existing gear as possible. If you're running a Mac, make sure software is available. OS support, cable sharing and upgradeability will all make life easier in the long run – which decreases the likelihood you'll end up chucking your tech away.

**Alec Baldwin**

If you're going Baldwin, go OB (Original Baldwin). The first Baldwin bro has put in superb work on everything from *Beetlejuice* to *30 Rock*. He is also a dedicated supporter of the Save the Manatee Club.

**Stuff says** ★★★★☆**Stuff TEST WINNER**

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NEXT BIG THING?



# 3D-printed lunar bases

## Call me an interplanetary pedant, but I think I spy an erroneous plural there.

Oh, it's that familiar adage. You wait years for a 3D-printed lunar base concept, and two come along at once. The first is from the engineers at the European Space Agency, with help from architecture firm Foster + Partners. The second is from the sharp-talking space boys over at NASA, with help from space architects Tomas Rousek, Katarina Eriksson and Ondrej Doule.

## That's the introductions out of the way. Now, won't 3D printing a base take ages?

You just need a bigger printer. The kind, say, Enrico Dini is using to build an entire house in Amsterdam. ESA will simply fly it to the moon and use it to build bricks out of the moon's own dust. What could be neater? At the moment, you would have to ship pre-built habitation units all the way there – not impossible, but prohibitively expensive and time-consuming.

## So is the NASA plan the same?

Not quite. Instead it's proposing to modify its existing (and awesome) Athlete spider bot, essentially strapping a microwave to one of its feet. Then it can superheat the dust to around 1500 degrees Celsius, binding the particles together. Ping! Bricks. Build a dome, and the astronauts will be safe from solar radiation and meteorite strikes. Oh, and then use that as a forward base for Mars and do the same there...



[Words Fraser Macdonald]

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